NETWORK WORLD
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Applications giant adopts client/server

By Timothy O'Brien
West Coast Bureau Chief

FRAMINGHAM, Mass. — Dun & Bradstreet (D&B) Software, one of the leading suppliers of mainframe applications, announced last week it will build a new generation of LAN-based applications that will work with its existing host software.

Recognizing that its current development strategy wasn't keeping pace with the radical shift to local-area network technology, D&B Software is moving to develop client/server applications that off-load significant processing from the host.

According to Robert Cameron, D&B Software's director of client/server business applications, the LAN-based applications will offer functionality that cannot be cost-effectively provided on the mainframe.

The strategy is thin on details at this point, at least publicly. Cameron declined to detail specific LAN applications the company will offer, but said some products will be offered by year end.

He said the software maker, a unit of The Dun & Bradstreet Corp., had to address user needs for client/server applications by providing more than just person-

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PHOTO ©1991 FRANK WING, STOCK BOSTON

Reno wagers net overhaul will improve city services

Ambitious plan calls for city, county to lay fiber for high-speed LAN links, downsize applications.

By Timothy O'Brien
West Coast Bureau Chief

RENO, Nev. — The city of Reno, along with Washoe County, has embarked on an ambitious project to provide high-speed links between more than 20 LANs at 12 sites by deploying some six miles of fiber cable through underground conduits.

As part of the network project, some older, host-based applications are being downsized to run under Informix Software, Inc. data base management systems on local-area networks and Unix workstations.

City and county officials believe the fiber network is going to revolutionize the use of information systems and improve the quality of government services. The network will support 10M bit/sec links between LANs and may enable the city and county to move up to the 100M bit/sec speed of a Fiber Distributed Data Interface network in the future.

The fiber net is expected to give government workers improved access to applications such as financial and mapping systems and graphics, as well as data bases for equipment management, fleet scheduling, work orders and many other systems.

The project grew out of a relatively simple plan formulated over two years ago to install a

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FCC decisions shake up network industry

Agency gives AT&T more freedom, but restricts Tariff 12; 800 portability moves toward reality.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — In a sweeping set of decisions issued last week, the Federal Communications Commission dramatically altered the rules under which AT&T offers most business services, including Tariff 12, and hastened the portability of 800 numbers.

Among other things, the agency voted to significantly reduce regulations governing virtually all of AT&T's large business services and remove them from price cap regulation, a move that gives the largest long-haul carrier greater pricing flexibility. The FCC also allowed AT&T to begin offering services through contracts, rather than general tariffs.

But the commission dealt AT&T a couple of blows. It barred the carrier from offering 800 services in Tariff 12 deals and significantly restricted its ability to modify existing custom net deals. The agency also found unlawful AT&T's earliest existing Tariff 15 discount deal, which paved the way for all Tariff 15s to be scrapped.

In addition, the FCC ordered the regional Bell holding companies to speed up portability of 800 numbers and said it will kick off a major inquiry into the way access charges for the local loop

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Virus protection products group forms

Charter members of Anti-Virus Product Developers Consortium

- Central Point Software, Inc.
- Certus International Corp.
- McAfee Associates
- Microcom, Inc.
- Symantec/Peter Norton Group
- XTree Co.

See story, page 4

GRAPHIC BY SUSAN J. CHAMPENY

AT&T plans to recast its PBX strategy

By Bob Brown
Senior Editor

BASKING RIDGE, N.J. — AT&T is readying a new low-end digital private branch exchange that provides a migration path to AT&T's Definity line and incorporates functions previously available only on the company's high-end PBXs, *Network World* has learned.

AT&T's new Merlin Legend will be configurable as a key system, low-end PBX or Centrex-compatible switch, sources said. The Merlin Legend will replace AT&T's existing Merlin II key systems and is aimed at companies or sites that use 100 lines or less. The switch overlaps somewhat with AT&T's System 25 low-end PBX, which AT&T will continue to sell for the foreseeable future.

The Merlin Legend will be unveiled either later this month or

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NETLINE

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NEW IBM PACK lets users turn PS/2s and RS/6000s into voice processing systems. Page 4.

IBM MANAGEMENT TOOL gives users control of multiple IMS systems from a central site. Page 4.

BILL LIMITING BUSINESS use of caller ID and ANI data clears a hurdle in the House. Page 4.

AT&T PARADYNE, IBM join forces to develop new T-3 speed channel extension products. Page 6.

OPEN SYSTEMS GROUPS plan week-long conference focusing on interoperability issues. Page 6.

REVLON SIGNS UP for three-year, $12m MCI custom network deal. Page 6.

NEWSPAPER

FEATURE

Application architectures key factor in net strategy

By Kimberly Patch
Special to Network World

Along the lines of what you don't know *can* hurt you, consider application architectures. For the past couple of years, computer vendors have been promoting them while some network managers have tuned them out.

But that ho-hum attitude could cause problems because application architectures have profound implications for networks. They're forcing network managers to deal with complex issues relating to applications themselves and drawing net managers into the realm of systems management.

Application architectures are supposed to make life simpler by setting standard user and programmer interfaces, standard links between systems and the blueprints needed to develop applications that work together across heterogeneous systems.

Among the major application architectures today are IBM's Systems Application Architecture (SAA), Digital Equip-

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Parallan alters superservers to run LAN Server, NetWare

Move to run popular NOSs in multiprocessing servers may boost transaction-based applications.

By Caryn Gillooly
Senior Editor

MOUNTAIN VIEW, Calif. — Parallan Computer, Inc. last week said it has modified its superservers to run Novell, Inc. NetWare and IBM LAN Server in multiprocessing environments.

Support for NetWare and LAN Server on Parallan's Server 290 superservers will enable information systems (IS) staffs to devise and run strategic local-area network-based transaction processing applications that support hundreds of local and remote users without degrading performance.

According to Parallan President Gianluca Rattazzi, these types of applications cannot be supported adequately on conventional uni- and dual-processor LAN servers. Instead, many of these applications currently reside on Digital Equipment Corp. VAXes or other minicomputers.

"What we're talking about is letting LAN Server or NetWare support very large applications — data base programs, credit card transaction processing, money transfers — on a server that will run certain applications considerably faster or at less expense than conventional devices," Rattazzi said.

To support the two net operating systems, Parallan ported its

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Bear, Stearns bullish on Adaptive's STM/18 switch

New switch to boost bandwidth mgmt. flexibility.

By Paul Desmond
Senior Editor

NEW YORK — Bear, Stearns & Company, Inc., a firm that specializes in finding good investments for its clients, believes it has one for itself in Adaptive Corp.'s new T-3 switch.

At its offices here, Bear, Stearns last week said the results of a month-long beta test indicate Adaptive's SONET Transmission Manager Model 18 (STM/18) will save the financial services firm more than 200% in line costs and provide it with greater bandwidth management flexibility.

Adaptive, a subsidiary of Network Equipment Technologies, Inc., was on hand at the briefing to announce it is now shipping the STM/18. The vendor said Bear, Stearns is one of two firms — along with an undisclosed oil company — testing the switch.

Adaptive also revealed pricing details for the switch, introduced last year ("Firm unveils SONET-based T-3 switch," *NW,* Nov. 5, 1990), saying it will range from $70,000 for a nonredundant configuration to over $200,000 for a fully configured node.

Jeff Marshall, managing director at Bear, Stearns, said the STM/18 provides greater reliability than its existing M13 mul-

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Unilever signs with Sprint Int'l for IVAN data services

By Barton Crockett
Senior Editor

LONDON — Unilever PLC, one of the world's largest multinational companies, last week said it is handing all of its European data traffic to Sprint International to facilitate international communications.

By doing so, Unilever will be able to take advantage of two unannounced Sprint International data services, including a router-based local-area network internetworking service.

Individual divisions of the $40 billion consumer products giant, based here, will replace separate networks with international value-added network (IVAN) data services from Sprint International to support the transmission of pan-European traffic.

Unilever sells many well-known consumer products, including Calvin Klein apparel, Elizabeth Arden cosmetics, Ragu food products and Lipton teas.

With the new LAN internetworking service, Unilever divisions will be able to link routers on their premises via private local-loop lines to Internet Protocol routers that Sprint International is deploying in its European IVAN nodes. These routers will send traffic via Sprint

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Briefs

Network World eases BBS access. In response to heavy subscriber demand, *Network World* last week added another access line to its electronic bulletin board service (BBS). In addition to the extra line for data base queries, the BBS speed has been upgraded from 8 MHz to 25 MHz to accommodate a considerable increase in user traffic. The *Network World* BBS currently has nearly 4,000 active subscribers and receives an average of 2,000 calls each week. Jeff Pennett, *Network World's* information systems director, said the additional capacity is necessary to prevent users from receiving busy signals when dialing into the BBS. Readers interested in using the BBS can follow the instructions listed in the table of contents below.

Madge Networks offers promo. Almost two months after IBM cut prices on its 16M bit/sec token-ring interfaces, Madge Networks, Inc. last week launched a limited promotion that effectively undercuts the price of IBM's discounted products.

From Aug. 1 through Oct. 31, customers can buy a 30-pack of Madge Network's Smart 16/4 AT Ringnode adapter cards for $24,000, or $800 each. The pack usually costs $29,850, or $995 each. On June 4, IBM cut the price of its 16M/4M bit/sec token-ring cards by 6.5%, from $957 to $895.

As part of the Madge Networks promotion, buyers receive a Smart 16/4 AT Bridge, valued at $3,995, in return for completing a product questionnaire. The company also promises a full refund if its engineers cannot configure the cards to work within a customer's existing net. Madge Networks explained the promotion as an attempt to accelerate user migrations from 4M to 16M bit/sec token rings.

Apache farms out net operations. Apache Corp., an independent oil and gas producer, last week announced it signed a five-year, multimillion-dollar contract under which Power Computing Co. will take over management of the energy firm's data center and network operations.

Power Computing will provide data processing, systems programming and network services to support Apache's headquarter operations here in Denver, as well as sites in Tulsa, Okla., and Houston. Apache will retain responsibility for application development, data base administration, disaster recovery, and personal computer and local-area network support.

Chipcom slates low-end hub. Chipcom Corp. this month will begin shipping a lower cost version of its smart wiring hub that is aimed at work groups consisting of as many as 40 users. The new six-slot ONline System Concentrator has all the features of the company's 17-slot concentrator, including fault tolerance, support for as many as three Ethernet, token-ring or Fiber Distributed Data Interface nets and integrated management control. The hub supports multimedia and multichannel configurations and accepts shielded and unshielded twisted-pair, coaxial and fiber-optic cable.

U.K. carrier cuts direct-dial rates. As a result of new U.K. policies encouraging network competition, the country's dominant carrier, British Telecommunications PLC, last week said it will cut prices for overseas International Direct Dial (IDD) calling services by an average of 10% on Sept. 2.

The U.K. government asked British Telecom to cut international service prices by 10% when it decided to open up its domestic market to more competition earlier this year. Included in the cuts will be price reductions of up to 19.8% for IDD service to Canada and the U.S. Separately, Mercury Communications, Ltd. said it will invest £1.5 billion ($2.5 billion) in network operations over the next three years, £100 million ($170 million) more than the carrier has invested since 1983.

SynOptics slashes 10BaseT prices. SynOptics Communications, Inc. today plans to announce price cuts of 25% on two 10BaseT modules for its System 3000 intelligent wiring hub. SynOptics will slash the price of both its Model 3308 10Base-T Host Module and Model 3307 50-Pin 10Base-T Host Module from $3,350 to $2,495, effective immediately. Separately, SynOptics will announce a 15% cut in the price of its Model 3356 Remote Bridge, from $11,795 to $10,295. The bridge module, like the 10BaseT modules, resides in the System 3000 hub. SynOptics said the price reductions are due to product design improvements and manufacturing advances.

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1988 *Sprint awarded 40% of Federal Telecommunications System 2000 contract. First to deploy SS7 nationwide.* 1990 *Sprint announces the first commercial video services to the Soviet Union.*

IBM offers voice processor option for PS/2, RS/6000

Pack supports phone access to host data bases.

By Bob Wallace
Senior Editor

NEW YORK — IBM last week announced a hardware/software option for its Personal System/2 and RISC System/6000 computers that enables them to serve as voice processing systems that provide advanced services.

The new IBM CallPath DirectTalk product line will enable users to automate routine call processing operations and provide callers with around-the-clock access to data residing on IBM hosts or computers attached to a local-area network.

When used with CallPath, IBM's private branch exchange-to-host software, the voice processing systems can help users enhance customer service in call centers by speeding call processing.

DirectTalk/2 is hardware and software that turns a PS/2 Model 80 into a voice processor designed for small- to midsized users. The offering can be expanded from four to 16 ports.

DirectTalk/6000 is a Reduced Instruction Set Computer-based offering for the RS/6000 that is suited for large users. It can be expanded from 12 to 72 ports. High call volumes can be handled by linking multiple systems on an IBM Token-Ring Network.

IBM will market the product as an add-on package, as well as bundle it with systems as full-blown voice response units.

DirectTalk/2 and DirectTalk/6000 provide enhanced services by integrating voice response, voice messaging and audiotex technologies. IBM has added speech recognition to the PS/2-based system and plans to do the same for the high-end unit.

The DirectTalk/2 option consists of two voice cards, a terminal-emulation card, memory expansion card, Token-Ring LAN adapter and speech recognition card. The PS/2 runs DirectTalk/2 software.

The DirectTalk/6000 hardware/software option consists of a terminal-emulation card, a Token-Ring LAN card and two cards for a T-1 interface. The RS/6000 runs DirectTalk/6000 software.

The DirectTalk/2 requires an analog link to the PBX, while the DirectTalk/6000 requires a T-1 or E-1 connection to the switch.

The DirectTalk/6000 can accept automatic number identification (ANI) provided by long-haul carriers' Integrated Services Digital Network Primary Rate Interface offerings and Dialed Number Identification Service (DNIS). The DirectTalk/2 does not support ANI or DNIS.

DirectTalk/2 and DirectTalk/6000 appear to hosts as IBM 3174 cluster controllers, which enables them to be managed from NetView.

IBM's decision to develop its own voice processing systems, rather than simply resell separate voice response, voice mail, audiotex and speech recognition systems, attests to the increasing importance it places on integrating the technologies.

The only voice processing product IBM sells today is the 9270 voice response unit, which is made by Syntellect, Inc. of Phoenix. IBM said it will continue to sell the 9270.

DirectTalk/2 and DirectTalk/6000 provide more than just voice response services. With the systems' voice messaging fea-

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IBM tool provides central control over IMS systems

By Paul Desmond
Senior Editor

WHITE PLAINS, N.Y. — IBM last week introduced new management software that lets users centrally control multiple IMS data base and transaction management systems, as well as automate key IMS operations.

The new IMS Automation Option (IMSAO)/MVS includes numerous automation features, such as the ability to recover critical IMS components and to bring an IMS subsystem up or down, either entirely or partially, according to a predefined schedule and in response to external happenings.

IMS comprises IMS Database Manager, a hierarchical data base management system, and IMS Transaction Manager, a transaction processing monitor.

Many users have multiple IMS systems running on one or many hosts and currently need an administrator to manage each system, said Evelyn Treuil, advisory marketing planner at IBM. "That's very expensive and labor-intensive," she said.

IMSAO runs as an application under one of two IBM console automation packages, Automated Operations Control (AOC)/MVS or the older Automated Console Operations (ACO) SolutionPac, which are tools for automated operations of MVS and its subsystems.

With IMSAO, users can build a single file that details rules governing automation features, such as when each IMS implementation in a network should be started, stopped or backed up, said Pat Donleycott, manager of NetView solutions at IBM.

Users of the IMS Extended Recovery Facility, which provides a means to switch to a backup IMS in case of failure, can employ IMSAO to automate that procedure.

IMSAO provides menu-driven screens on its NetView terminal console from which users select desired functions. Operators no longer have to know a large number of IMS commands and can control any IMS in the network from a single NetView, 3270-based console.

From the same terminal, users can monitor the status of any IMS based on a color-coded display provided by the AOC/MVS or ACO SolutionPac tools.

IMSAO can also automatically recover from some IMS error conditions, such as a transaction or application abend.

Analysts said IMSAO will be a boon for users.

"I think it's extremely important for the larger IBM users," said Frank Dzubeck, president of Communications Network Architects, Inc., a consultancy in Washington, D.C. "It's another step in the 'lights out' approach to things."

David Passmore, a partner with Ernst & Young, a consultancy in Boston, noted there was no mention of SystemView in IBM's IMSAO literature.

Donleycott acknowledged the product is not yet SystemView-compliant but said, "We are the closest automation product there is right now to being SystemView-compliant."

Available now, IMSAO has a basic onetime charge of $15,800 or a distributed license charge of $11,850.

Upgrades are available for existing AOC/MVS and ACO SolutionPac users for $7,200 in single quantities or $5,400 each for multiple licenses. ◻

Antivirus firms to launch consortium to dispel hype

By Bob Brown
Senior Editor

MECHANICSBURG, Pa. — Six antivirus software makers are planning the formation of a consortium to clean up some of the hype in the market and increase public awareness about the dangers of computer network viruses, *Network World* has learned.

By agreeing on standards for product claims, the Anti-Virus Product Developers (AVPD) Consortium hopes to make it easier for users to select antivirus products.

The group's four main objectives are to establish industry standards for reporting, counting and classifying computer viruses; to adopt a code of developers' ethics, such as guidelines for the exchange of viruses for research purposes; to increase the public's awareness about viruses by separating actual issues from myths; and to sponsor research by vendor-independent organizations.

Charter members of the AVPD Consortium are Central Point Software, Inc., Certus International Corp., McAfee Associates, Microcom, Inc., Symantec/Peter Norton Group and XTree Co. Membership is open to all other makers of antivirus software, of which there are more than 60.

David Stang, director of research at the National Computer Security Association (NCSA), said he is optimistic about the vendor cooperation. "There's a notion that the antivirus guys are just out to make a buck, but I think they really do care about users and their problems," he said. The NCSA is an organization dedicated to improving public understanding of computer security issues and is a driving force behind the AVPD Consortium's formation.

One of the biggest problems plaguing the antivirus software industry has been that every vendor has its own way to count and classify viruses, explained Peter Tippett, president of Certus International. This is confusing to users who cannot tell if two vendors are talking about the same virus or whether a vendor claiming its software can eliminate 1,000 viruses is able to kill those most likely to strike the user's

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House bill curbs ANI, caller ID use

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — The House Subcommittee on Telecommunications and Finance last week approved a watered-down version of a bill introduced in March that would restrict corporate use of information gathered from automatic number identification (ANI) and caller ID services.

The bill would prevent firms with caller identification or ANI services from using telephone numbers or other personal information gleaned from 800, 900 or local calls for any purpose other than internal use. It would also prevent the disclosure of information about characteristics of customer transmissions such as calling patterns and locations, and transmission speeds.

The primary objective of the bill is to prevent companies from compiling a list of callers, cross-referencing their phone numbers with names and addresses, and then selling those lists to telemarketing firms.

According to Rep. Edward Markey (D-Mass.), chairman of the Telecommunications and Finance Subcommittee and sponsor of the bill, the legislation is designed to protect consumers' privacy and to prevent them from unwittingly giving away personal information that could be used by telemarketers. Such privacy guarantees are particularly important, he said, since between 30% and 50% of all telephone customers pay a fee each month to keep their phone numbers private.

But the bill rankled some lawmakers who saw it as too intrusive into the business practices of private firms, and Markey was forced to work out a new version of the bill with less stringent protections on the use of telephone information.

"Similar legislation died under a veto threat from the White House [last year]," Markey said. "We're trying to craft something

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Corrections: The article "SNMP manager eases use of private MIB extensions" *(NW,* July 29) incorrectly listed the developer of the MONET network management software. It is Hughes LAN Systems, Inc.

The story "Novell to acquire desktop OS vendor Digital Research," (*NW,* July 22) incorrectly cited the value of Novell, Inc.'s acquisition of Digital Research, Inc. The firms agreed to a stock swap valued at about $80 million.

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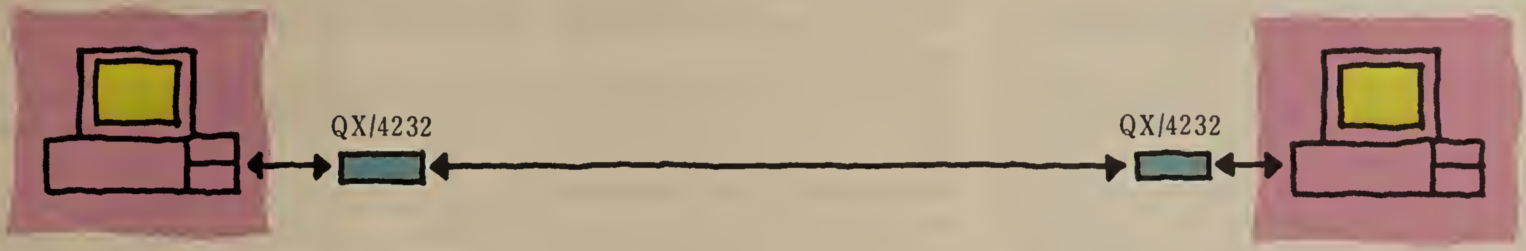

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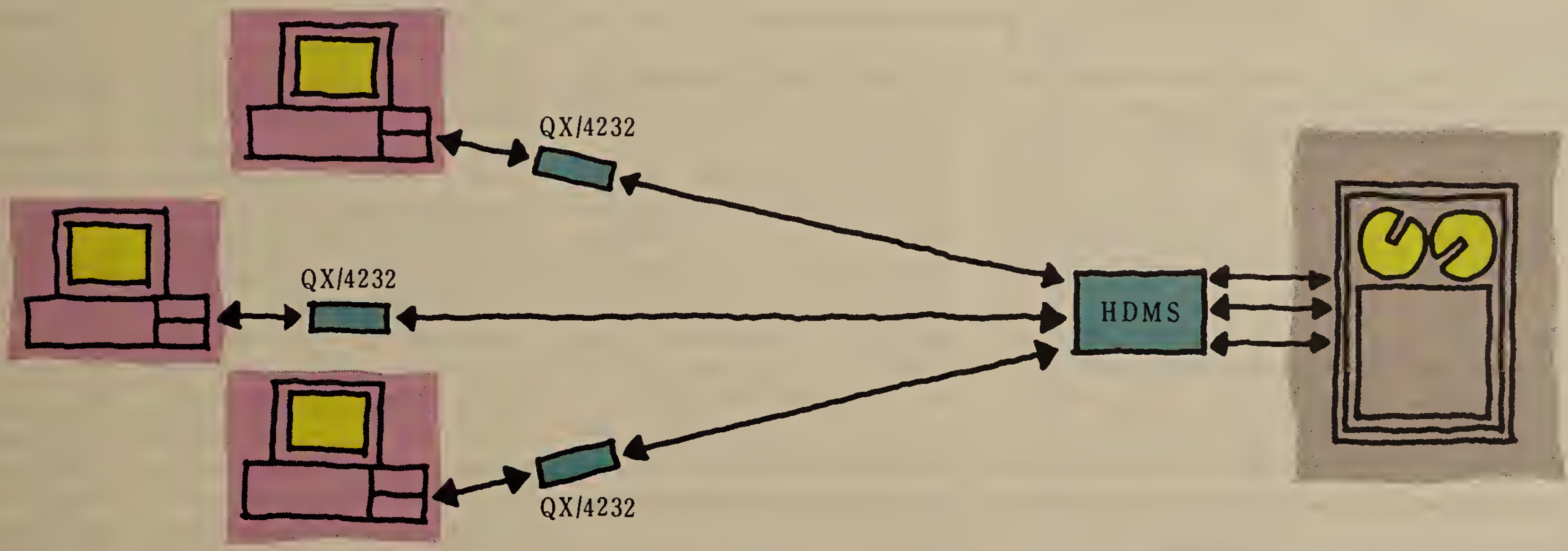

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User groups set week-long open systems conference

By Wayne Eckerson
Senior Editor

MCLEAN, Va. — In an unprecedented show of cooperation, open systems users groups are banding together this fall to sponsor a week-long conference addressing network and information systems (IS) interoperability issues.

Called the Open Systems Conference, the event will showcase programs by the North American MAP/TOP Users Group, the User Alliance for Open Systems, the North American ISDN Users (NIU) Forum, the Electric Power Research Institute (EPRI), the National Institute of Standards and Technology, and OSINET Corp.

"There is real synergy to be gained by getting all these groups together," said Laurie Bride, task chair of the Manufacturing Automation Protocol/Technical and Office Protocol steering committee. "Usually, there are too many open systems activities going on and they're not coordinated."

The Corporation for Open Systems International (COS), which provides administrative support for many of the groups involved, is coordinating the conference, which will be held Nov. 18-22 at the Hyatt Regency hotel in Reston, Va.

The conference is expected to draw about 600 people, including network and IS managers as well as business executives from leading companies, according to Bill Horst, COS director of education.

It will feature a day of tutorials offered by COS, users group meetings and updates on major projects, educational sessions and vendor presentations. Interoperability demonstrations are also being planned.

> "There is real synergy to be gained by getting all these groups together," Bride said.

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The User Alliance for Open Systems is sponsoring a special afternoon session in which top executives from leading computer manufacturers will discuss their vision of open systems and their companies' agendas for developing open systems products.

The conference will also feature a progress report on efforts to consolidate MAP/TOP, Government Open Systems Interconnection Profile and EPRI OSI specifications into a single unified OSI profile. This common, or core, specification is being called the Industry and Government OSI Specification.

The NIU Forum will present an update on the Transcontinental ISDN Project (TRIP) '92, an event scheduled for November 1992 that will demonstrate nationwide ISDN connectivity. TRIP '92 will be a culmination of efforts undertaken by the NIU Forum, COS, Bell Communications Research and the major switch vendors to foster the widespread implementation of National ISDN 1 standards.

The conference will also host the annual meeting of the COS board of directors and OSINET's annual membership meeting. OSINET runs a network that is used by firms to prepare interoperability demonstrations and to test product interoperability.

For more information, call Bill Horst at (703) 883-2730.

AT&T Paradyne, IBM join on channel extension work

AT&T Paradyne, IBM to build channel extension products for unlimited distance links at T-3 speed.

By Paul Desmond
Senior Editor

LARGO, Fla. — AT&T Paradyne and IBM last week announced they will work together to develop new channel extension products, based on the IBM 3172 Interconnect Controller, that will work with T-3 lines over an unlimited distance.

The 3172 is used to connect local-area networks to a host channel or link channels over wide-area T-1 facilities.

Software from AT&T Paradyne's existing PIXNET XL/1000 and XL/2000 products, which link IBM mainframe channels to remote devices over wide-area T-1 links, will be ported to the 3172 and enhanced to support T-3 links.

ESCON compatibility

Bill Beers, director of product marketing for AT&T Paradyne, based here, said the IBM agreement gives his company a vehicle to produce a channel extension product that works with IBM's Enterprise System Connection Architecture (ESCON) channel.

ESCON is the 10M byte/sec fiber optic-based mainframe channel technology IBM introduced last September. The 3172 Model 1A supports ESCON and IBM has announced a statement of direction to support it on the Model 2, due out in December, which will also support the Fiber Distributed Data Interface.

AT&T Paradyne plans to deliver T-3 channel extension products that work with ESCON sometime in 1992, Beers said. Further details on the product will be made available in the fall.

Sam Albert, president of Sam Albert Associates, a management consulting firm based in Scarsdale, N.Y., said the agreement is a significant one.

"Channel extension is an important element of enterprise computing, and IBM is realizing it can't do everything itself," Albert said. "It's the best example of what I call coopetition between AT&T and IBM to date. IBM is helping its customers through Paradyne's technology."

Only AT&T Paradyne will sell and support the 3172-based channel extender, although IBM's sales staff will recommend it to customers, said Nick Francis, IBM's program manager for the 3172.

Francis said the AT&T Paradyne product will fill a gap in IBM's line for channel extension products that link mainframes to remote devices, such as printers, tape drives and controllers.

T-1, T-3 support

The 3172 currently supports as many as four T-1s, which can be configured as a single bandwidth pool but only for channel-to-channel links over a wide area. Last September, IBM announced a statement of direction to support T-3 links on the 3172.

Other IBM products, such as its 3044, address limited-distance channel extension requirements for parallel bus and tag channels. Additionally, IBM's ESCON Director can be employed to extend ESCON channels up to about five miles.

AT&T Paradyne will not be first to market with a wide-area, unlimited-distance T-3 channel extender since competitors such as Data Switch Corp. already offer such products.

The company also last week announced ChannelSphere, a set of products and services intended to help users develop a strategy for the effective use of channel extension products.

Group to push integrated computer-phone products

AT&T, DEC, Rolm included among participants.

By Bob Brown
Senior Editor

WASHINGTON, D.C. — A group of computer and telephone equipment and software makers is expected to announce tomorrow the formation of an organization dedicated to expanding the market for integrated computer-telephone applications.

The Alliance of Computer-based Telephony Application Suppliers (ACTAS) will attempt to educate users and encourage them to adopt applications based on integrated computer and telecommunications systems. AT&T, Digital Equipment Corp. and Rolm Co. are expected to participate in the group.

ACTAS will operate as one of four councils under the North American Telecommunications Association (NATA), a Washington, D.C. trade association representing manufacturers and distributors of public and private communications, and computer and software products.

Members of the alliance, which will probably have its first formal meeting during NATA's Unicom '91 conference here in November, have been meeting informally for about a year.

"A lot of users think of computer-integrated telephony as similar to ISDN: 'Yeah, it'll be here, but who knows when?' " said Jim Burton, president of Computer-Telephone Link, Inc., a Boston consultancy. "This alliance is going to help educate users about how to take advantage of technology available today."

In a typical application, caller identification data delivered with an incoming call would trigger a computer search for the caller's record in a data base, speeding call handling and personalizing service.

Ron Charnock, president of NPRI, Inc., will serve as the alliance's chairman. NPRI is an Alexandria, Va.-based developer of software and equipment supporting in-bound call centers and outbound telemarketing.

Although an agenda has not been set for ACTAS yet, Charnock said the group may set up an advisory panel to help members better understand how to increase awareness of computer-integrated telephony applications.

"This market has been too technology driven to date," he said. "The potential of using telephones and [computers] together has not yet reached top executives at many businesses. Success stories are few and far between."

Earlier this year, NATA formed a Computer-Telephone Task Force to address the need for a single computer-telephone interface standard ("NATA group to form PBX-to-host specs," *NW*, April 1).

Cosmetics firm adorns MCI with $12m custom deal

By Bob Brown
Senior Editor

NEW YORK — Revlon, Inc. has awarded MCI Communications Corp. a three-year, $12 million contract to provide the beauty products maker with a hybrid private/virtual network supporting over 150 company sites, *Network World* has learned.

Revlon and its dozen or so subsidiaries and sister companies had dealt individually with MCI, but will save about $500,000 a year by bundling traffic under an umbrella contract for MCI's Vnet virtual net service and other services, said Ron LoRusso, Revlon's director of worldwide telecommunications.

Savings could grow to $700,000 annually by 1992 based on calling volume under this plan, which LoRusso described as similar to AT&T's Tariff 12.

"We've been using MCI services for years," LoRusso said. "But I decided, after getting badgered for years by aggregators, to go out and become my own aggregator for Revlon and our parent company's [MacAndrews & Forbes Group, Inc.] divisions."

LoRusso said the intelligence of the Vnet service enables each unit of Revlon to remain autonomous but still win savings through combining traffic. The net is used for a variety of applications, including point of sale, electronic data interchange and the exchange of general administrative information.

By leveraging its total spending on network services, Revlon will win bigger discounts than the individual units would receive, said Bob McGuire, MCI's director of commercial national accounts in New York. At the same time, the contract includes customized billing services that enable units to be billed individually for their net usage, he said.

The network consists of a T-1 backbone network linking Revlon

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INDUSTRY UPDATE

VENDOR STRATEGIES, MARKET TRENDS AND FINANCIALS

Worth Noting

"The RBHCs have been saying for some time [that] the restrictions placed on their participation in information provision have been a barrier to network upgrades. [U.S. District Court Judge Harold Greene's recent] decision will call their bluff and potentially encourage network upgrades."

Caroline Michel
Analyst
International Data Corp.
Framingham, Mass.

People & Positions

Floyd Ross last week was named senior staff engineer at **Timeplex, Inc.** He will be responsible for overseeing the architecture of the company's Time/LAN internetworking products.

Ross is active in Fiber Distributed Data Interface standards-setting activities. He is vice-chairman of the X3T9.5 FDDI standards subcommittee where he has led the development effort for that standard since its inception in 1982.

Previously, Ross was a senior staff engineer at Unisys Corp. He was responsible for FDDI and local-area network product strategies at Unisys, which recently sold Timeplex.

James Graf II recently was named vice-president of government relations for **British Telecommunications PLC.**

Graf will head a newly established government relations office in Washington, D.C. and will be responsible for British Telecom's dealings with the U.S. and Canadian governments as the carrier attempts to increase its presence in North America.

Previously, Graf was vice-president of governmental relations for Contel Corp. ☒

Vendors assail privacy bill's curbs on work monitoring

Clause would require warning signals for workers.

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — A House bill that would curb electronic surveillance of employees drew fire recently from groups that said it would go beyond limiting telephone monitoring of customer service operators and hamper domestic productivity and corporate security efforts.

The Privacy for Consumers and Workers Act (H.R. 1218), introduced by Rep. Pat Williams (D-Mont.), does not eliminate electronic monitoring of employees outright, but limits the collection of information to that which is "relevant to an employee's work performance."

In addition, the bill would require employers to use indicators — such as a flashing light or audible tone — to periodically notify employees that they are being monitored. A similar bill was introduced in the Senate by Paul Simon (D-Ill.).

Lawrence Fineran, assistant vice-president of the National Association of Manufacturers, and Thomas Flood, vice-president and general manager for operator services at Pacific Bell, testified against the bill before the House Subcommittee on Labor-Management Relations.

Both Fineran and Flood said the employee notification clause would cause employees to behave uncharacteristically during performance monitoring, which would result in inaccurate readings of performance levels.

Fineran and Flood added that the bill would hamper efforts to uncover fraud or corporate spying, or even preclude general surveillance efforts.

Fineran argued that since electronic monitoring is broadly defined in the bill as including all forms of "visual, auditory or computer-based surveillance," it includes computer-based manufacturing as well and the equipment used to automatically monitor employee productivity within factories.

"Corporate management should not be prohibited from using information obtained through computer-aided manufacturing unless managers are physically on the shop floor looking over the shoulders of employees," Fineran said, speaking for the group's 12,500 member companies, which account for 85% of all workers in manufacturing industries.

At the recent hearing, Flood called the federal legislation

(continued on page 8)

INDUSTRY BRIEFS

Vendors offer ISDN API for PCs. Siemens Private Communications Systems Group and Hayes Microcomputer Products, Inc. last week said they have signed a development agreement called PBX and Computer Teaming (PACT). Under PACT, the two companies will develop a customized application program interface (API) based on the Hayes ISDNBIOS API. The API will permit software developers to develop personal computer-based Integrated Services Digital Network applications for intelligent call handling. The applications could involve retrieval of caller information from a data base.

AT&T slates staff cuts. AT&T recently said 1,800 out of a total of 7,500 AT&T Computer Systems workers in sales, technical and administrative positions will be eliminated through dismissal, early retirement or reassignment as a result of AT&T's acquisition of NCR Corp. AT&T said it expects NCR to recruit a majority of AT&T Computer Systems' 3,900 U.S. management employees. AT&T expects NCR to pick up 1,500 nonmanagement employees or stay with AT&T to service equipment.

NCR to use Persoft wares. NCR Corp. recently announced a marketing agreement with Madison, Wis.-based Persoft, Inc. under which Persoft will provide communications software to link NCR's WaveLAN wireless local-area network to existing Ethernet LANs. The Persoft product, the Intersect Concentrator, is scheduled for August release. ☒

RBHC information services time line

January 1984	RBHCs are banned from information services market under Modified Final Judgment.
September 1987	U.S. District Court Judge Harold Greene rules to allow RBHCs to provide information services transport but not information.
March 1988	Greene grants RBHCs permission to offer voice mail, E-mail, audiotex and information gateway services. RBHCs are still barred from originating information or manipulating it.
April 1990	Federal appeals court orders Greene to reexamine whether RBHCs should be allowed into information services market.
July 1991	Greene rules that RBHCs should be allowed to enter information services market. He suspends decision, however, pending appeals.

GRAPHIC BY TERRI MITCHELL

Carriers set sights on new info services

RBHCs focus on mass market services first, plan to address business-class services over time.

By Bob Brown
Senior Editor

In the wake of U.S. District Court Judge Harold Greene's recent decision to permit the RBHCs to enter the information services market, the carriers said they are stepping up efforts to offer services despite a stay temporarily barring them from the market.

The regional Bell holding companies said initial efforts will focus largely on delivering such mass market services as electronic yellow pages and news services, which will likely be targeted at residential and small business customers.

But the carriers also will cater to large businesses by offering enhanced electronic data interchange, image processing and improved information service gateways, among other services.

"Starting soon, we'll be able to make our existing services even more intelligent and easy to use," said Raymond Smith, Bell Atlantic Corp.'s chairman and chief executive officer. "We'll also accelerate the development of new services."

The RBHCs have been banned from participating fully in the information services market since they were formed with the divestiture of AT&T in 1984 (see chart, this page). But an appeals court decision last year practically forced Greene to lift the sanction ("RBHCs receive green light for info services," *NW*, July 29).

Greene issued the ruling but delayed RBHC entry into the information services market by issuing a stay on his decision until appeals on the topic are heard.

Nevertheless, the RBHCs said they have begun gearing up their information services planning efforts. The companies, which have spent millions lobbying Congress to gain entry into the information services market, said that instead of launching a wave of new services for large businesses, they anticipate initial information service offerings will be designed for residential and small business customers.

In their lobbying efforts, the RBHCs argued that they are better equipped than existing information service providers to appeal to a mass market, which they claim cannot afford many of the information services available today from other providers.

Bell Atlantic expects its first new information services for business customers will involve embedding value-added services atop existing information services that the carriers have previously been allowed to offer.

For example, Bell Atlantic plans to bolster its IntelliTrade EDI services by including electronic funds transfer capabilities and possibly by providing translation between various EDI protocols — something it previously was not allowed to do, a company spokesman said.

Bell Atlantic also plans to provide the conversion services that will enable users to mix and match messaging services so they can send an electronic message that will arrive as either a facsimile or voice message, he said.

Russ Lindenlaub, director of corporate planning at Southwestern Bell Corp. in St. Louis, said

(continued on page 8)

Vendors assail bill's curbs on monitoring

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unnecessary, noting that Pacific Bell conducts employee monitoring according to guidelines reached in accordance with the Communications Workers of America (CWA). Under that agreement, employees are informed they that will be monitored as a group periodically.

Pacific Bell routinely collects raw data on numbers of operator-assistance calls and monitors interactions between operators and customers to ensure service quality.

Flood said the requirement to give individual employees notice would preclude management from discovering and correcting poor employee performance. The U.S. Telephone Association also echoed the remarks in a statement issued in opposition to the bill.

Congress also heard employee views on the issue. Harriette Ternipsede, a reservation agent at Trans World Airlines, Inc., which monitors employee calls, testified before Congress that "monitoring makes us feel like prisoners hooked up to a computer — guilty, paranoid, enslaved, violated, angry and driven at a relentless pace. Laws must be updated to protect the worker and private citizen against this abuse."

An analysis of the privacy bill by the Labor Policy Association, a Washington, D.C.-based research firm for Fortune 300 companies, contends that H.R. 1218 would likely increase worker stress by adding notification of monitoring.

The firm also pointed out that the broad definition of electronic monitoring as data collection that is gathered "in whole or in part by a wire" presents wide-ranging implications.

The analysis concluded: "As written, the bill would appear to prohibit transferring employee payroll records from one corporate location to another, forbid any electronic processing of personnel records, ban the use of surveillance devices used in department stores to protect against shoplifting, force surveillance cameras in banks to emit a constant beeping sound, and prohibit multiuser word processing systems from attaching IDs to file names."

Williams, who noted his bill now has 110 cosponsors in the House, claims it will work, adding, "The brokerage house [Charles Schwab & Company, Inc.] has implemented a beeping tone on all calls they monitor. They did it as a courtesy to both their employees and their customers, and they have found the procedure to be very well received by both parties."

The capability of technology to pry has pushed against the boundaries of privacy, he said. "It's simply the purpose of this legislation to identify the boundary and not go beyond it. Technology can run over the top of our individual freedom.

"We have to try and see if this Congress can define this boundary," Williams said. ☐

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Senate committee passes two bills to regulate telemarketing industry

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — The Senate Commerce Committee last week approved two bills to regulate the telemarketing industry, sending the legislation to the Senate floor for a full vote.

Both bills would restrict the use of autodialing equipment and require the Federal Communications Commission to establish a means of limiting unwanted phone calls to consumers, preferably through the establishment of a national electronic data base listing names of individuals who wish to be excluded from telemarketing calls.

The Senate committee moved quickly to approve the bills in the wake of a Senate Communications Subcommittee hearing in which the Direct Marketing Association (DMA) presented little opposition to the bills.

Sen. Ernest Hollings

At that hearing, Richard Barton, DMA's senior vice-president, government affairs, told subcommittee members the telemarketing industry could live with the requirements imposed by The Automated Telephone Call Protection Act (S. 1462), introduced by Sen. Ernest "Fritz" Hollings (D-S.C.).

The Hollings bill prohibits calls made through autodialing equipment to emergency, medical and law enforcement facilities, or any telephone number assigned to paging or cellular telephone service.

This ban is supported by Telocator, a trade association for the paging and cellular industry, which contends that automatic dialers produce unwanted and expensive calls to cellular subscribers, as well as tie up facilities because recorded messages do not hang up until the entire message has been played.

The bill also calls for autodialing equipment to disengage a called party's line within five seconds after the party has hung up. Fax transmissions would have to carry the transmitting business's name and phone number.

Barton voiced strong objections to elements of a second bill under discussion, The Telephone Advertising Consumer Rights Act (S. 1410), introduced by Sen. Larry Pressler (R-S.D.), which directs the FCC to study the establishment of "a national data base of objecting persons" who would be off-limits to telemarketers.

The telemarketing industry would have to pay for the creation and maintenance of such a data base, which FCC Chairman Alfred Sikes said would cost $70 million to create and as much as $20 million per year to support.

If a national electronic data base were established, the Pressler bill would require telemarketers to purchase from it the lists of consumers who wish to be excluded from telemarketing calls. For persons on that list, telemarketers could only call them if they had an "established business relationship."

In a statement prepared for the subcommittee, Olan Mills II, chairman of the board of Olan Mills, Inc., a Chattanooga, Tenn.-based chain of photography studios, called this clause anticompetitive because it favors large companies over smaller ones.

"Very large businesses that sell many products would be free to continue telephone marketing, while small businesses or those with a limited line of products, such as ours, could be precluded from it," Mills stated.

Because the system would be enforced through civil penalties under the Communications Act of 1934, its susceptibility to inaccuracies and outdated information would place telemarketers at risk of almost constant violations of solicitation restrictions, Barton added.

Barton noted that the First Amendment right to freedom of speech is raised under the Pressler bill.

However, Hollings said, "The First Amendment allows the government every right to place reasonable time, place and manner restrictions on speech when necessary to protect consumers from a nuisance and an invasion of their privacy." ☐

Carriers set sights on new info services

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there are numerous value-added processing services the RBHCs could offer.

These might include medical imaging services that enable doctors to remotely monitor patients as well as a mass storage service that involves the carrier supporting a central data base of electronic records or images that customers not wishing to operate their own nets could access from various sites, Lindenlaub said.

He also described a potential service that would call for the carrier to monitor stock quotes for customers and automatically fire off E-mail messages to predetermined recipients upon a stock price hitting a certain threshold, he said.

"We have looked at marketplace needs," Lindenlaub said. "[But] there are obviously more resources that would have to be applied before we would make decisions to implement [these services]."

Ronald Serrano, vice-president and head of the North American practice of TBS/SPA, a Washington, D.C.-based consulting firm, described the lifting of the information services ban as the most significant event for the RBHCs since the Modified Final Judgment was created. But in order to sell information services to large business customers, he said, the RBHCs will need to focus on specific vertical market applications.

"The challenge facing the RBHCs is that they need to become successful niche marketers as opposed to mass marketers," Serrano said. ☐

TELECOMMUNICATIONS

CARRIER SERVICES, CENTREX, CPE, WIRING SYSTEMS AND BYPASS

Worth Noting

The Securities Industry Association (SIA), a trade group representing brokerages and investment banks, last week said the 70 members that have signed up for the SIA-US Sprint Communications Co. custom net are generating more than $1 million a month in traffic.

Carrier Watch

US Sprint Communications Co. last week launched a billing and management program designed to give resellers more flexibility and profit opportunities when selling the carrier's network services to users.

US Sprint says the new program, dubbed ProfitMark, relieves resellers of many administrative functions and enables them to spend more time with customers.

Under ProfitMark, resellers will be able to put up less capital and have a lower credit level in order to resell US Sprint net services. Also, administrative functions such as billing and payment processing are off-loaded from resellers to US Sprint and Compucom Communications Corp., a telecommunications service bureau in Indianapolis.

In other news, US Sprint announced a three-year, multimillion-dollar contract to provide Apple Computer, Inc. with a nationwide Virtual Private Network (VPN).

The virtual net will link 80 Apple offices in the U.S. with corporate headquarters in Cupertino, Calif. The computer company had been buying VPN services on a monthly basis for several years.

Apple uses various other US Sprint offerings, including videoconferencing, 800, 900 and leased-line services.

Investing in SONET

Local exchange carrier/interexchange carrier spending plans

Budget (In millions of dollars)	1992	1994	1996	1998	2000
Total for transmission equipment	$4,539	$4,722	$4,913	$5,112	$5,318
SONET transmission equipment	45	472	1,474	2,556	3,723
Total for switching equipment	7,727	8,039	8,363	8,701	9,053
SONET switching equipment	20	180	800	2,610	4,526
Total spending for SONET equipment	65	652	2,274	5,166	8,249

SONET = Synchronous Optical Network

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: CONNECTICUT RESEARCH, GLASTONBURY, CONN.

Carriers' billing woes may affect rollout of services

Experts say systems can't support new services.

By Anita Taff
Washington Bureau Chief

WASHINGTON, D.C. — Unless local and long-distance carriers move quickly to implement new billing systems, they risk delaying the introduction of advanced network services or being unable to properly bill for them, industry experts told attendees at a recent conference here.

Speakers at the Telecom Billing '91 conference agreed that new information and high-bandwidth services are already taxing the capabilities of billing systems, leading to numerous problems such as late and inaccurate bills. Billing system problems are likely to worsen as more services come on-line and could delay introduction of sophisticated services in the future, they warned.

"If billing systems aren't in place, new services won't see the light of day," agreed Herb Patterson, manager of architecture and planning of customer billing at Bell Communications Research, the joint research arm of the seven regional Bell holding companies.

Nicholas Panfen, associate partner in the Telecom Industry Group at Andersen Consulting, said, "Up to now, service introductions are still ahead of the carriers' ability to effectively bill for them." Some new data services, he explained, have characteristics that are significantly different from traditional voice services. This means that carriers must either hold up new services until billing issues are resolved or use a less satisfactory pricing scheme, such as charging a flat rate instead of one that is usage-sensitive.

"Most companies see the billing system as an impediment to introducing new services," Panfen said.

The problem with current billing systems is that they are based on computer technologies from 10 or 20 years ago, which have trouble handling information from modern network billing devices, Panfen said. These systems are not flexible enough to accommodate rapid changes in billing needs for new services — such as on-demand bandwidth — or to provide greater customer control via access to billing systems.

Daniel Briere, president of Telechoice, Inc., a research firm in Montclair, N.J., agreed that billing systems aren't keeping up with user demand for more sophisticated billing services. As an example, he said, customers increasingly want all service charges merged into one bill with one payment date and with information delivered in a customized format.

However, carriers traditionally have developed separate billing systems for new services and have staggered payment dates to ensure continuous cash flow, making it difficult to perform consolidated billing.

An additional problem hampering effective billing is carrier planning, according to Patterson. "Billing is often considered at the end [of product planning] today, but billing needs to be thought of and planned right up front," he said. This is because carriers must figure out what network devices will be used to do the measurements necessary to produce bills, and with more intelligence in today's networks, the choices are becoming more complex, Patterson explained.

Flowers Direct: fresh approach to ordering

Using AT&T's InfoWorx, Flowers Direct will provide improved user service with no equipment expense.

By Bob Wallace
Senior Editor

BOCA RATON, Fla. — A start-up company called Flowers Direct, Inc. is planning to launch this fall a service using voice response technology that will enable customers to dial a single number to order flowers for delivery anywhere in the U.S.

The Flowers Direct offering will be based on AT&T's InfoWorx service, which lets users create voice response applications supported by voice response units housed in AT&T's network. InfoWorx can be a less expensive alternative to building premises-based voice response systems.

Flowers Direct hopes to gain an edge on rivals by giving callers direct access to florists throughout the U.S. Current services pass customer orders to a wire transfer service, which then passes the orders to local florists.

Flowers Direct also estimates that it can reduce by half the $5 to $10 fee charged by other offerings. For example, the 800 Flowers nationwide flower service charges an $8.95 fee per order.

"Through this system, consumers will speak directly with the florist who will be filling the order," said Flowers Direct founder Donn Flipse. "With traditional wire transfer services and 800 numbers answered by telephone order takers, consumers are never quite sure what will arrive at the recipient's door."

To use the Flowers Direct net, customers with push-button telephones can dial a special 800 number and be routed to the nearest of AT&T's three InfoWorx platforms — in New York, San Francisco or St. Louis.

The AT&T Conversant Voice Information System voice response unit will prompt the caller to press 1 if he knows the zip code of the recipient. If the caller doesn't know the recipient's zip code, he presses 2 and the call is routed to an operator who looks up the zip code and returns the call to the voice response unit.

Once the caller enters the zip code, the voice response unit matches it with the telephone number of the nearest member florist and routes the call along.

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WASHINGTON UPDATE

BY ANITA TAFF

FCC funding saved by friend in Congress. Rep. John Dingell (D-Mich.), head of the House Committee on Energy and Commerce, last week fended off an attempt to cut requested funding for the Federal Communications Commission for the next fiscal year by $13.4 million. Rep. William Dannemeyer (R-Calif.) had asked the committee to hold the FCC's funding increase to 2.4% annually, which would have given the commission only $119.6 million of the $133 million it had requested. Dannemeyer urged committee members to work toward reducing the deficit by putting a lid on spending. "If we're ever going to get out of this fiscal disaster, we're going to have to limit growth," he said. However, considering the FCC's increasing work load, which may now include the major job of regulating information services provided by the regional Bell holding companies, the Energy and Commerce Committee was in no mood to cut funding. It voted 11-5 to give the FCC the full amount requested.

"Today, as we enter an unprecedented period in the evolution of America's telecommunications industries, the role of the FCC is critical to promoting a competitive marketplace, providing timely development of efficient, innovative communications facilities and services," said Rep. Edward Markey (D-Mass.), head of the Telecommunications and Finance Subcommittee. "We must ensure that Congress gives the FCC the resources it needs to guarantee American consumers the

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Washington Update

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benefits and protections they deserve."

FCC Chairman Alfred Sikes has said the commission needs additional money to add staffers to the Common Carrier Bureau, which oversees tariffs and price cap regulation, upgrade computer systems and pay onetime expenses associated with the move to a new building next year.

US West's request. US West Communications, Inc., a subsidiary of US West, Inc., last week asked the FCC for permission to conduct a personal communications network (PCN) trial. The firm said it would like to conduct the trial in two phases, the first of which would be geared toward experimenting with equipment at labs in Boulder, Colo., and Portland, Ore.

The second phase would test PCN access with 800 to 1,000 customers in an unspecified city in US West's territory. The PCN applications would be tested in the 2-GHz frequency.

In its application, US West Communications said the objectives of its trial are twofold: to learn what types of services and features businesses and residential consumers want and to refine the necessary equipment for a PCN service. Among the technical questions the company said it hopes to answer with the trial are how PCN interoperates with traditional network technology and access devices, how effectively calls are handed off between PCN cells and how well the system operates for both voice and data calls.

There are about 40 firms, including AT&T, that have already asked the FCC for experimental licenses for PCN. ☎

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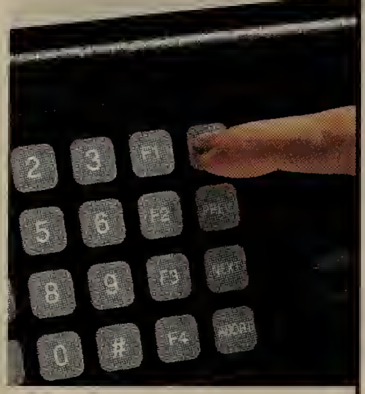

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Fracdial is a trademark of Digital Access Incorporated

Fresh approach to ordering

continued from page 9

The caller then places the order directly and arranges to charge the cost of the flowers.

The cost of sending customers' calls to member florists is picked up by the florists.

"Using InfoWorx is the way to make ordering flowers convenient for customers," said Sharon Pye, Flowers Direct's operations partner.

Significant savings

InfoWorx is also a good move for Flowers Direct because it is a less expensive alternative for the company than buying, installing and operating its own voice response units.

> "AT&T showed us that we didn't need the equipment ourselves," Pye said.
>
> ▲▲▲

AT&T, which also sells premises-based interative voice response units, says InfoWorx is typically the lower cost choice. With InfoWorx, the customer pays onetime script development and maintenance charges and a monthly charge based on usage.

"AT&T showed us that we didn't need the equipment ourselves to [launch] the ordering network," Pye said.

Flowers Direct sees other advantages to InfoWorx as well.

"One attractive thing about InfoWorx is that we get the benefit of all enhancements without having to purchase new or upgraded [existing] equipment," Pye said. "That's a big savings."

When it begins using InfoWorx in mid-September, Flowers Direct will join a fast-growing group of companies that have employed the network-based voice processing capabilities to quickly and affordably launch new services.

Charles Schwab & Company, Inc., the nation's largest discount broker, uses InfoWorx to support a telephone trading service called TeleBroker, which enables callers to trade stocks and securities, obtain stock quotes and check account balances. ☎

DATA COMMUNICATIONS

PRODUCTS, SERVICES, ARCHITECTURES, STANDARDS AND NETWORK MANAGEMENT

Worth Noting

WilTel has certified Cisco Systems, Inc.'s line of routers and 3Com Corp.'s NETBuilder family of bridges and routers as compatible with its WilPak frame relay service. The certification programming is continuing with a number of other router and channel service unit vendors.

Data Packets

Century Analysis, Inc. of Pacheco, Calif., last week announced overSNA, a software product that lets users administer remote Unix machines over Systems Network Architecture networks. The software establishes an LU 6.2 link through the SNA network over which users can employ the Telnet virtual terminal protocol to access remote Unix devices.

Available now, overSNA costs $1,950 per Unix machine.

NetLabs, Inc. of Los Altos, Calif., recently announced it has signed OEM agreements with seven vendors for its DualManager, which is Unix-based software that supports the management of various network devices using the Simple Network Management Protocol and the Common Management Information Protocol.

Gandalf Data, Inc. used DualManager as the basis for its Access Manager software ("Gandalf tool uses SNMP, CMOT to manage Ethernets," *NW*, July 22).

NetLabs' other OEM partners are Ascom Holding A.G., Control Data Corp., Crescendo Communications, Inc., Independence Technologies, Inc., Raycom Systems, Inc. and Siemens Nixdorf Informationssysteme AG.

Used equipment broker finds profit in recession

Century helps firms obtain products for aging nets.

By Timothy O'Brien
West Coast Bureau Chief

SAN FRANCISCO — Century Computer Marketing, a distributor of used communications and computer equipment, stands out as a leader in the trailing edge of technology.

Century surfaced at the recent Communication Networks West show here to cut deals with information systems (IS) managers needing to unload idle network equipment or locate outdated products for aging but still viable networks.

"Everybody at the show is a prospect for us since our service is to make existing technology work longer and to save people money," said Richard Smith, vice-president at Century, based in Marina Del Rey, Calif.

With millions of dollars of inventory in data communications equipment, computers, peripherals and related products, Century is active in the secondary equipment market. Since the pace of new technology moves ahead so quickly, Century is virtually assured there will always be an ample supply of discontinued products to buy and sell.

> "This recession has created opportunities rather than hurt us," Smith said.

▲▲▲

With the current economic downturn and increased competitive pressures, people are taking a harder look at budgets for new equipment and waiting longer before they buy.

In many cases, users are being forced to try to get the maximum usage from existing networks, which often means shopping for quality used products. In addition, companies that can't afford to stock excess equipment are looking to unload it.

"This recession has created opportunities rather than hurt us," Smith said.

For instance, one health maintenance organization recently saved $250,000 by buying a large supply of Micom Communications Corp. 800/8000 multiplexers that an insurance company had just unloaded.

Likewise, a large financial brokerage phased out its use of Timeplex, Inc. T-1 multiplexers and contracted with Century to find a buyer for the equipment. Using its 30 salespeople and a 10,000-customer mailing list, Century sold all the used multiplexers.

Another customer, a bank, had an application that used a modem that was three generations old. Rather than update the application, the company wanted to find 50 more modems to expand the current net. The modem manufacturer, which Smith declined to identify, could not supply the modems, so Century found them through its contacts.

Sometimes Century is called in after a network manager has been fired. Smith said they are currently working with a customer trying to sell $2.5 million worth of network equipment that proved inadequate in less than two years.

Even some of the major financial regulatory agencies in Washington, D.C. have saved money by incorporating used or refurbished components into their nationwide networks. Since these clients avoid maintenance plans, when a piece of used equipment doesn't work anymore, they often throw it out.

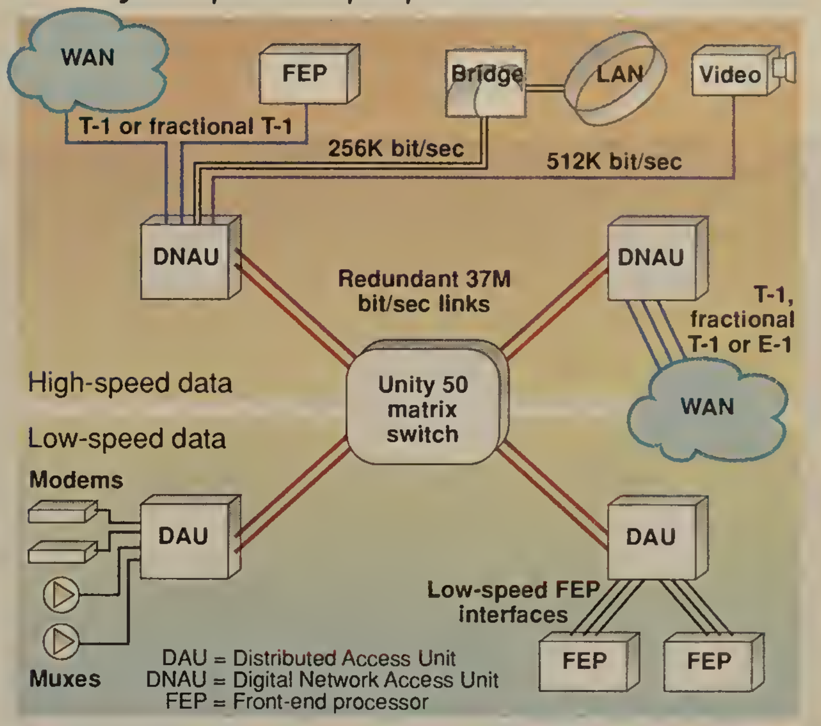
Recognizing that users may be hesitant to buy used equipment, Century offers flexible selling and purchasing programs as well as services to offer the purchaser assurances, such as warranties. In addition to post-sales support, Century checks revision levels of all products to ensure that products will be compatible with the user's installed equipment.

Not all distributors of used equipment work this way. Smith cautions users about "garage shops" — usually underfinanced brokers that sell unreliable used products and offer no services.

Of its 130 employees, approximately one-third are technicians involved in the testing, repairing, reconfiguring and repackaging of equipment. Century works with manufacturers to arrange maintenance plans for their customers and also supplies spare parts for many maintenance companies.

"AT&T and IBM understand the value of the secondary market by encouraging and supporting maintenance on used equipment," Smith said. Some smaller firms don't see the benefits of the secondary market and sometimes are leery about supporting these products.

Bytex picks up speed with DNAU



Bytex's new DNAU can be used to provide redundancy among devices requiring high-speed connectivity and to multiplex 56K or 64K bit/sec circuits onto T-1 or fractional T-1 wide-area links.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: BYTEX CORP., SOUTHBOROUGH, MASS.

Bytex unit lets Unity switch support T-1s

Device supplies T-1 WAN link, beefs up Unity port speeds to T-1, reduces multiplexer ports required.

By Paul Desmond
Senior Editor

SOUTHBOROUGH, Mass. — Bytex Corp. last week unveiled a new access unit for its Unity matrix switches that lets users connect local devices to the switch at T-1 speed or link the switch to a wide-area T-1 network.

The new Unity Digital Network Access Unit (DNAU) lets users attach devices that operate at up to T-1 speeds to a Unity 50 or Unity 50-LE matrix switch. Until now, the switch supported port speeds of up to 320K bit/sec.

Barry Charton, vice-president of product marketing for Bytex, based here, said the new DNAU is suited for a couple of generic applications.

One is for a user with a number of T-1s coming into a data center that need to be broken down into subchannels, then recombined into some other combination for distribution to other sites.

Another possible application is for a user with a large number of lines originating from a single site that need to be distributed to other sites. Each DNAU supports as many as 60 data ports, 28 T-1, fractional T-1 or E-1 trunks, or some combination of data ports and trunks.

Charton said Bytex acquired part of the DNAU's T-1 switching mechanism from another vendor, which he declined to name.

According to Larry Wolfman, director of marketing for connectivity systems at Bytex, the DNAU can be used to provide redundancy for devices such as front-end processors or routers that can operate at up to T-1 speed. The wide-area T-1 link also lets users store the spare front end, or other device, at a remote location, Wolfman said.

The DNAU does not have all the sophisticated reroute capabilities of an intelligent T-1 multiplexer, however.

"It's not going to compete with the [Network Equipment Technologies, Inc.'s] of the world, but it does provide some enhanced capabilities in terms of on-premises T-1 circuit management," Charton said.

The DNAU could complement a T-1 multiplexer by combining DS0s onto T-1s on its own and feeding full T-1s to the T-1 multiplexer, thus reducing the number of multiplexer ports required.

"I think that's the major selling strategy," said Rick Malone, principal at Vertical Systems Group, a consultancy in Dedham, Mass. "But it's a niche market. It's meant to be an upgrade for their own customer base."

The DNAU is scheduled for availability in September. The cost of adding a DNAU to an existing Unity matrix switch starts at $57,500, not including interface boards. The boards cost $4,000 for two trunk ports or four data ports.

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What's more, because everything is accomplished with a single card, there's no need for a separate PAD and complicated wiring. And since the MAXserver 6625 needs only one X.25 line to serve multiple hosts, you save money on line costs as well.

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XYPLEX

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Worth Noting

> "If Banyan [Systems, Inc.] made its wide-area networking software available for Novell LANs, I would stand in line for it."
>
> **Ken Dick**
> Manager of MIS
> American Express
> Information Services Corp.
> Omaha, Neb.

Netnotes

InterCon Systems Corp. has introduced PlanetX, software that provides remote control of Apple Computer, Inc. Macintosh computers, at the recent Mactivity '91 trade show in Santa Clara, Calif.

PlanetX enables any X Windows device — such as a Sun Microsystems, Inc. workstation, Digital Equipment Corp. terminal or Macintosh running MacX — to remotely operate a Macintosh that has the PlanetX software installed. The X Windows workstation can display in a window the screen of a remote Macintosh as well as have full control over the Macintosh client's files and applications.

Expected to be available in August, PlanetX will be priced starting at $295 and will be sold in bundles to support 10, 25, 50 or 100 users. InterCon is based in Herndon, Va.

PC Office, Inc. recently released the T100A network adapter, a product that gives users 100M bit/sec data transfer over unshielded twisted-pair wiring.

The adapter is a 16-bit Industry Standard Architecture bus-compatible personal computer half card that is based on the company's own 6100 LAN chip, which lets the adapter transmit information at 100M bit/sec.

According to the San Diego-based company, data can be sent at 100M bit/sec at distances of 100 meters and 50M bit/sec for 200 meters over unshielded twisted pair.

The T100A, priced at $595, is available now. ◻

NRC broadens MultiGate line with two new hubs

Fiber offering, 12-port 10BaseT product debut.

By Timothy O'Brien
West Coast Bureau Chief

MILPITAS, Calif. — Adding to its MultiGate hub line, Network Resources Corp. (NRC) recently unveiled a fiber-optic hub as well as a 12-port version of its existing 24-port 10BaseT Ethernet hub.

NRC's MultiGate Intelligent Fiber-Optic Hub supports 12 Fiber Optic Inter-Repeater Link (FOIRL) Ethernet links to network devices, including other hubs and routers. The company is positioning the new device as a lower cost alternative to a Fiber Distributed Data Interface net.

"This product will be used by those customers who are installing fiber as an investment in the future but want to use FOIRL now due to the cost savings," said Bradley Brown, product marketing manager for NRC.

The fiber hub can be used to build a backbone network supporting NRC's 10BaseT hubs. It can be managed through NRC's MultiGate Manager, which is bundled with every hub. MultiGate Manager is based on Apple Computer, Inc.'s Macintosh network management software.

Users can obtain a port-by-port event summary for fault isolation, along with real-time and historical analyses of all significant error conditions.

NRC is working on support for the Simple Network Management Protocol (SNMP) for network management, and Brown said users would be given free upgrades when SNMP support is available — possibly as soon as the end of this year.

The MultiGate 10BaseT hub, which connects devices over unshielded twisted pair in a star topology, also includes a bridge that is used to filter traffic between the hub network and the backbone net.

In addition to the 24-port 10BaseT hub introduced in May, NRC now offers the 12-port 10BaseT hub to give users greater flexibility in configuring networks for smaller work groups.

The MultiGate Intelligent Fiber-Optic Hub will be available this month at a cost of $6,595 for a 12-port version, $4,995 for an eight-port version and $3,395 for a four-port version.

The MultiGate 12-port 10-BaseT hub is already shipping and is priced at $2,495. ◻

InterActive tools let LAN users swap voice messages

By Timothy O'Brien
West Coast Bureau Chief

HUMBOLDT, S.D. — InterActive, Inc. has unveiled Microsoft Corp. Windows-based mail products that enable users to store and send voice messages to other users on a Novell, Inc. NetWare LAN.

Following up on the May release of its InterActive Sound Software, InterActive recently introduced three low-cost packages combining the hardware and software necessary for on-line voice mail, dictation and personal note-taking.

"Even though personal computer power has increased dramatically over the last 10 years, the primary means of communication through computers is still the inefficient keyboard," said Gary Kappenman, chief executive officer of InterActive.

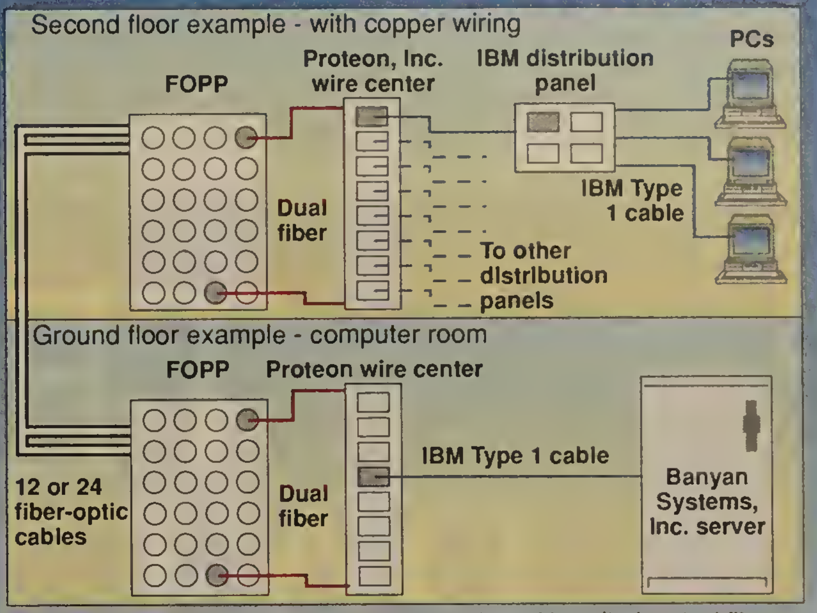
The InterActive Sound Software, running on a local-area network server, is designed to eliminate the need for typing by allowing users to create messages by speaking into a microphone. The software then transmits the voice messages around the LAN to users who have personal computers equipped with the appropriate sound boards and speakers. Users are alerted on the screen in Windows that mail messages have arrived and can replay the messages through a couple of clicks on the mouse.

InterActive was founded in 1989 and is in the process of introducing some of its first multimedia products this year. When InterActive first offered the software in May, users needed to purchase the accompanying hardware on their own from a list of approved equipment specified by the company.

InterActive has since put together three new packages that use different grades of speakers and microphones. These InterActive Sound Systems include the InterActive Sound Software, a sound adapter board for digitization and playback of sound, re-

(continued on page 14)

Dana-Farber's LAN blueprint


Second floor example - with copper wiring
FOPP
Proteon, Inc. wire center
IBM distribution panel
PCs
Dual fiber
IBM Type 1 cable
To other distribution panels
Ground floor example - computer room
FOPP
Proteon wire center
IBM Type 1 cable
12 or 24 fiber-optic cables
Dual fiber
Banyan Systems, Inc. server

Dana-Farber's network uses a large number of installed optical fibers, wire center technology and token-ring networks to link institute users into logical working groups connected to centrally located servers.

FOPP = Fiber optic patch panel

GRAPHIC BY SUSAN J. CHAMPENY

SOURCE: DANA-FARBER CANCER INSTITUTE, BOSTON

Creative wiring plan betters LAN design

Dana-Farber Cancer Institute configures logical work groups with users' application needs in mind.

By Salvatore Salamone
Features Writer

BOSTON — Dana-Farber Cancer Institute has established an innovative wiring scheme using fiber-optic cables and wiring hubs that enables the health care facility to configure LANs to support work groups based on their application needs rather than their physical locations.

Instead of forcing all users in a particular area — a floor of the institute, for example — to share a server, administrators can create logical work groups by linking users who need access to similar resources into a single local-area network work group, even if the users are in different locations.

This approach offers several advantages, including more efficient use and centralized management of servers and a higher level of physical security, according to Bill Harrison, network and operations manager at Dana-Farber. In addition, servers can be optimized for a work group's needs.

For example, a single floor of a building may house both administrative workers and researchers, but each group uses different applications. A similar arrangement could exist in an adjacent building.

With a traditional wiring scheme, workers on one floor would be connected to the same LAN and would share a server, which would have to run all applications required by both groups.

The Dana-Farber wiring scheme allows researchers in both buildings to be connected to one token ring and administrative workers to be linked in a second token ring. Each ring has its own server running only the applications used by the work group it supports, eliminating the need to duplicate applications on every server.

"Being able to form logical working groups and tie them to one server is a more efficient use of server capacity," Harrison said.

Dana-Farber's network supports more than 400 personal computers connected via shielded twisted-pair wiring and wiring hubs to multiple fiber-optic backbones.

Every faceplate in the six-building facility has shielded twisted-pair wiring running to an IBM distribution panel located in a wiring center on the same floor. If a user is to be connected to a LAN, the personal computer is fitted with a Proteon, Inc. ProNet-4/16 adapter card, and the card is plugged into the faceplate.

Administrators can link an end user to any of a number of logical token-ring LANs through a connection from the IBM panel into one of several Proteon wire centers on a particular floor. The wire centers provide access to different fiber strands in the 12- or 24-fiber bundles in each building and between buildings, allowing the health care facility to connect

(continued on page 14)

Creative plan betters design

continued from page 13

users in different locations into the same LAN (see graphic, page 13).

Banyan Systems, Inc. VINES-based servers housed in a central data center are connected to the backbones in a similar way.

Harrison can create multiple rings on each floor or in each building because there are so many fiber strands. "We installed plenty of fiber so we can afford to run many rings," he said.

Some floors have more than one LAN, each using a different 4M or 16M bit/sec fiber backbone. "When we have two separate working groups on a single floor, we use multiple wire centers on that floor," Harrison said.

Locking in a net design

Server efficiency was only one consideration when the network was being designed. Central management and security of the servers were also important.

"Early in the design phase, we realized the network would require multiple servers," said Bruce Bancroft, regional vice-president at Trellis, a value-added reseller in Hopkinton, Mass. "We didn't want to put a server in every broom closet."

Bancroft said locating the servers in a central site offers all of the benefits afforded by conventional computer centers. These include a climate-controlled environment, easy access for repairs — as opposed to carrying equipment to another location to diagnose and repair a server — and a level of security that is not afforded by having servers scattered throughout the institute.

The desire to centrally locate the servers helped define the physical network.

"We found that the greatest distance from a personal computer to a centrally located server was about 10,000 feet," Bancroft said. "With distances like that, there weren't many choices to tie those personal computers into the network. Fiber-optic backbones were the only way to do it."

The network also had to be able to accommodate more users and support high-performance applications such as imaging in the future.

This led to a network wiring scheme based on fiber-optic cabling with shielded twisted-pair wiring to the desktop. "We chose fiber for its versatility and flexibility," Harrison said. "Fiber was the best way to provide distributed networking to all six buildings, and it gave us the capability to do virtually anything."

According to Harrison, the network will eventually migrate to one based on the Fiber Distributed Data Interface standard. Several years ago, when the network was being designed, running FDDI over shielded twisted pair didn't seem possible.

"When we started this project, we took a risk basing the network on fiber backbones and shielded twisted pair to the desktop," he said. "Now it seems certain that FDDI will run over shielded twisted pair. "It looks like we made the right choice," Harrison said. ◼

TEST PATTERN.
MultiModem224E
MultiModemV32
PC MAGAZINE EDITORS' CHOICE May 12, 1987 MultiModem224E MT224EH
PC MAGAZINE EDITORS' CHOICE December 11, 1990 MultiModemV32 MT932EAB

When Multi-Tech modems are put to the test, a pattern emerges.

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PC Magazine, 12 11/90 (Ziff-Davis Publishing) "9600-BPS MODEMS: Breaking the Speed Barrier-PC LAN Labs tests seven rapid-fire modems complying with V.32, V.42 and V.42bis standards."

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Tools let users swap messages

continued from page 13

cording and listening devices for input and output of sound in higher quality multimedia applications, as well as all necessary connecting cables.

The InterActive sound board fits into an 8-bit personal computer expansion slot and provides recording performance up to compact disc quality for multimedia presentations.

In addition to providing inputs for high- and low-gain microphones and headsets, the sound board can be connected to CD or cassette players for high-gain input or direct-line level recording.

Sound System I, which comes with a headset and an attached microphone, is priced at $395. Sound System II, at $475, includes a hand-held microphone and speaker, while Sound System III, priced at $495, has a microphone on a gooseneck stand. These systems are expected to be available this month. ◼

MANAGEMENT STRATEGIES

MANAGING PEOPLE AND TECHNOLOGY: USER GROUPS AND ASSOCIATIONS

Worth Noting

> "A lot of [network departments] are struggling to determine how good a job they're doing and what they're contributing to the company. We need a metric that accurately measures the value of the corporate network to the overall enterprise."
>
> **Rob McCauley**
> Quality manager for corporate telecommunications
> Digital Equipment Corp.
> Littleton, Mass.

Association Watch

The **Society of Telecommunications Consultants** will hold its annual fall conference Sept. 20-23 at the Pan Pacific Hotel in San Diego.

Keynote speakers will be Terry Mulready, vice-president and general manager of Pacific Bell, and James Jacobson, Integrated Services Digital Network project manager at the National Aeronautics and Space Administration's Jet Propulsion Laboratory.

Sessions will be held on videoconferencing, predictive dialing, internetworking and regulatory trends. The conference costs $395 for members and $595 for nonmembers.

For more information, call Sharyl Bradley-Hennard at (800) 782-7670 or (407) 852-7071.

GE Information Services is sponsoring the Second Annual Users Group Meeting for its business communications clients Oct. 7-9 at the Kingsmill Resort in Williamsburg, Va. This year's conference will focus on how GE clients can use information technology to improve customer service.

For more information, contact Wendy Herman at (301) 340-4977. ◼

How do net execs make decisions?

By Maureen Molloy
Staff Writer

From scheduling a staff meeting to drafting an enterprise network strategy, network executives are called upon to make myriad decisions.

But to make informed, intelligent choices, many managers say they've had to work hard honing their decision-making styles.

"It took a long time for me to come up with a style that works," said Chuck Papageorgiou, network administrator at United Parcel Service, Inc. in Mahwah, N.J. "I've gone through numerous trials and errors, and learned a lot of hard lessons along the way."

Papageorgiou started out with an autocratic management style because he thought managers should make all the decisions. But he slowly learned that the best decisions are made when staff and end users are included in the process.

"Believing that you alone, as the manager, have the right answer is a recipe for death," he said. "One person cannot know all of the parameters involved and, though the network manager must give the final authorization, oftentimes a staff member is more qualified to make a particular decision."

Michael Kilbane, general manager of systems development at Diamond Shamrock R&M, Inc. in San Antonio, Texas, agreed.

5 critical steps

To making effective decisions:

1. Identify the problem.
2. Gather and analyze data.
3. Formulate alternatives.
4. Choose a course of action.
5. Evaluate results.

SOURCE: AMERICAN MANAGEMENT ASSOCIATION, NEW YORK
GRAPHIC BY SUSAN J. CHAMPENY

"I don't have sufficient expertise to make all decisions myself," he said, "so I seek out the advice of other staffers, and especially end users, to ensure that the best solution is being employed."

The wisdom of this decision-by-consensus strategy became even more apparent, he said, after Diamond Shamrock adopted a total quality management strategy. Now quality teams are regularly formed to focus on a particular issue and arrive at the best solution.

The art of managing

Patrick Springer, director of communications consulting at Computer Task Group, Inc., a Lowell, Mass.-based consultancy, said a successful network manager is one who can delegate responsibility, solicit user involvement and make decisions despite incomplete data.

Springer noted that because many net managers rise through the technical ranks, they often

(continued on page 16)

Industry mourns loss of two top net executives

By Wayne Eckerson
Senior Editor

ATLANTA — A random shooting spree here early last month took the lives of two top network professionals and left another seriously injured.

Keith Jonas, manager of corporate telecommunications at C&S/Sovran Corp., and Anthony Lake, a principal and network consultant at KPMG Peat Marwick, were gunned down on July 2 as they walked to a meeting downtown here. Jonas was killed instantly, and Lake died two days later.

Bill Johnson, a senior manager and network consultant from KPMG Peat Marwick, who was accompanying Jonas and Lake, was also shot. Johnson, who was in critical condition for several weeks, is now recovering at his home in St. Louis.

The alleged assailant, who was arrested moments after the shooting, had reportedly lost his job recently and been evicted from his apartment. The suspect is also being charged with a similar shooting on June 26 in which a lawyer was shot in the shoulder while walking to his office downtown.

Jonas, 45, was the top network executive at C&S/Sovran, the nation's 12th largest bank, where he managed a staff of more than 200 people. A 23-year veteran of C&S/Sovran and its predecessor companies, Jonas held positions of increasing responsibility in op-

(continued on page 16)

Regaining control after outsourcing

After 10 years of outsourcing, Victor Products rebuilds IS and networks from the ground floor up.

By Wayne Eckerson
Senior Editor

LISLE, Ill. — Reversing an outsourcing decision isn't easy, but it can be done — as the Victor Products Division of Dana Corp. has proven.

In the mid-1970s, Victor Products, a maker of engine gaskets and sealing products based here, outsourced its data processing and network functions to a small service bureau so it could focus on core business operations. But a decade later, realizing its applications and computers were becoming obsolete, the company decided to reestablish its information systems (IS) department and rebuild its IS infrastructure from scratch.

"[IS] was so far out of sight and out of mind, we didn't bother to keep up with new technologies, and neither did our outsourcing firm," said Warren Smith, manager of IS.

Guiding destiny

When Smith was hired in 1987, he quickly realized that Victor Products had to take charge of its own IS and network destiny. The firm needed to implement advanced manufacturing systems to support future growth and maintain competitiveness.

But there was one big problem. Victor Products didn't have the resources or expertise in-house to develop and implement the necessary systems. Smith was virtually the only member of the IS department.

> We didn't keep up with new technologies, and neither did our outsourcing firm.
>
> ▲▲▲

So he set about building a network that gave users throughout the company access to manufacturing resources planning (MRP) applications. He standardized on Digital Equipment Corp. VAX minicomputers and terminals, as well as Ethernet networks, and decided to buy off-the-shelf MRP software from ASK Computer Systems, Inc. of Los Altos, Calif.

In addition, Smith hired Price Waterhouse to convert data base information from the service bureau format to the ASK systems and also to provide end-user training.

The ASK MRP software, called MANMAN, provides Victor Products with a fully integrated package that handles order management, materials planning, general ledger, payroll, lot tracking, and accounts receivable and payable, as well as human resources and bar coding.

Warren Smith (l.) discusses operations of the engine test cell controller with Gary Motycka, manager of engine testing.

The MANMAN software runs on a DEC VAX 6320 minicomputer at Victor Products' headquarters here.

Users working on DEC terminals or personal computers emulating terminals at the firm's three plants in Chicago, Robinson, Ill., and Danville, Ky., access the MANMAN applications via a DECnet network. Each of the plants is linked to the VAX host via 56K bit/sec circuits, forming a star configuration.

Each plant contains a 10M bit/sec Ethernet backbone that supports the DEC terminals. The personal computers, which are used to run office automation software, are linked to the backbone via Ethernet subnetworks running Microsoft Corp. LAN Manager.

Price Waterhouse began planning the conversion and training workers to use MANMAN and the new network about six months prior to the Jan. 1, 1989 cutover date. Despite the preparations,

(continued on page 16)

Industry mourns loss of top net executives

continued from page 15

erations and information systems before he was appointed in 1986 to head up the bank's communications function.

According to coworkers, Jonas played a key role in consolidating data processing and network facilities following several bank mergers, the most recent being the 1990 union of Citizens and Southern Bank of Atlanta and Sovran Financial Corp. in Norfolk, Va., which created C&S/Sovran.

On the day of the shooting, Jonas was meeting with Lake and Johnson to review the bank's network in anticipation of the merger with NCNB Corp., which was announced two weeks ago.

"Keith was a visionary who had a good sense for the direction [in which] technology was headed," said George Budd, corporate operations and technology manager at C&S/Sovran. "He also had broad management skills and the ability to get along with people on all levels of the corporate hierarchy."

William Johnson

Keith Jonas

Russell Fiske, vice-president of network architecture and integration at C&S/Sovran, said Jonas kept a sharp focus on what the company and end users needed and pushed his workers to provide it. "He always challenged us to come up with new ways to do things," Fiske said. "You had to work hard to stay up with him."

Jonas, a resident of Marietta, Ga., was a 1968 graduate of Bowdoin College. He is survived by his wife, Shirley, and three daughters, Gwendolyn, Ann and Mary.

Lake, 37, had been a consultant in KPMG Peat Marwick's information technology practice since 1983. He had extensive experience designing, evaluating and implementing networks and information systems for companies in various industries.

Lake was a senior member of the Institute of Electrical and Electronics Engineers, Inc. Communications and Computer societies and was a voting member of the IEEE 802 Committee on local-area network standards.

Prior to joining KPMG Peat Marwick, Lake was a computer scientist and product manager for advanced communications systems at Bolt, Beranek and Newman, Inc. He had published more than three dozen technical papers in a variety of industry journals.

Lake, a resident of Chesterfield, Mo., attended the Massachusetts Institute of Technology, where he received a master's degree in computer science and engineering. He is survived by his wife, Carol, and five-year-old triplets, Joseph, Nicholas and Jossalyn.

Johnson, who is from Webster Groves, Mo., serves in KPMG Peat Marwick's Midwest telecommunications consulting practice.

Prior to his consulting work, Johnson worked at Southwestern Bell Telephone Co., where he helped large business customers develop and implement a range of voice and data communications services.

Johnson is a member of the IEEE, the American Society of Hospital Engineers and the Society of Telecommunications Consultants. He holds a master's degree in business administration from the University of Kansas.

Anthony Lake

Regaining control after outsourcing

continued from page 15

all did not go smoothly at first.

"For the first three months, I got calls from users who wanted to hang me," Smith said. "We quickly found the holes in our training and what wasn't set up right. We turned the world of our workers upside down. We probably asked too much of them all at once."

Gradually, however, users began to learn the new system, and as they did, the company's productivity and responsiveness increased significantly, he said. The new integrated systems enable Victor Products to ship products quicker, shorten lead times for filling custom orders, reduce inventory levels and cut waste.

Now Victor Products is able to provide just-in-time delivery to its larger customers — the Big Three automakers. For one large customer, Victor Products is able to turn around orders and ship goods in just four hours, Smith said.

Happy customers

"Customers say they like the way we are doing business, and that's what brings in more business," Smith said.

"Bringing IS and networking functions back in-house enables us to quickly develop custom applications that meet our customers' needs instead of depending on an outsourcing company, which has its own bottom-line interests to serve," he added. "Running our own shop gives us a competitive advantage."

One way that Victor Products hopes to gain an advantage is by streamlining its electronic data interchange system.

Currently, the company runs a batch process each night to convert EDI purchase orders and material releases into MANMAN sales and work orders. But in the future, it would like to process EDI documents as soon as they hit the data base so that sales and work orders are entered in real time into the MANMAN system, Smith said.

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How do net execs make decisions?

continued from page 15

struggle in the switch from a task-oriented, reactive mind-set to the more goal-oriented approach of a manager. Rather than just working with fixed tools, they are now asked to make hard strategy choices based on a sometimes vague corporate direction.

"Most net managers are accustomed to dealing with tangible, precise elements and find it hard to switch gear and deal largely with concepts," he said.

In addition, Kilbane said, managers often have to make tough choices with limited information.

"Technocrats tend to be perfectionists who require 100% of the data before moving ahead with any project. But as a manager, you simply can't afford to do that," he said. "Making decisions on the 80/20 rule or worse is common and something that takes time to grow comfortable with."

Dudley Cooke, president of The Executive Insight Group, Inc. in Bryn Mawr, Pa., said that many net managers still shy away from decision-making responsibilities.

"I've found that many managers are risk averse and can't make swift decisions for fear of making a mistake," Cooke said. "Managers must understand that if they sit too long on a particular problem, then they become part of that problem."

Cooke, a former chief information officer of Sun Company, Inc. in Radnor, Pa., rose through the technical ranks. He succeeded in his role as decision maker by soliciting active participation from staff and, when necessary, end users.

"Team participation is vital. The best decisions are rarely made in a vacuum and almost always improve as more people are involved," he said.

All net managers interviewed agreed that no decision is ever final and the results of any decision must be continually evaluated.

Kilbane and his staff chose to develop one application on a mainframe platform but switched direction eight months later when they discovered that a personal computer platform would be more suitable.

"It's a huge oversight not to review your decisions," he said. "You must go back and reevaluate what you've done to see that it's doing what you expect and that your decision wasn't based on false assumptions."

"I reevaluate all of our major decisions," Papageorgiou said. "My philosophy is that, given enough time, every decision we make for the network can, and will, be proven wrong."

INTERNATIONAL NETWORKS

USER STRATEGIES, INTERNATIONAL SERVICES & REGULATION

World News

MCI Communications Corp. recently announced agreements with five carriers to provide an international one-stop shopping service called Global Communications Services (GCS).

The five carriers are British Telecommunications PLC, Kokusai Denshin Denwa Company, Ltd., France Telecom, PTT Telecom Netherlands and the International Telecommunications Authority of Thailand. Under GCS, these carriers will work with MCI to act as a single point of contact for ordering, provisioning, billing, maintaining and servicing global networks of private lines and packet-switched data services.

GCS participants will also provide equipment collocation services. MCI first announced GCS in January with 17 foreign carriers.

Separately, MCI also recently said it began Call USA service to Costa Rica, Ireland and Hungary, making the total number of countries served 52. Under Call USA, travelers abroad dial toll-free numbers to reach MCI operators who help them complete calls to the U.S.

In its July 20th issue, ***The Economist*** published the results of an informal test of the Soviet Union's public network that demonstrated what many users already suspected — that the country's public net service is terrible.

From June 21 to July 17, *The Economist* tracked every international call attempt

(continued on page 18)

China lets MCI, US Sprint use direct ties to mainland

Ruling lets carriers bypass AT&T for China link.

By Ellen Messmer
Washington Correspondent

WASHINGTON, D.C. — The People's Republic of China recently signed agreements with MCI Communications Corp. and US Sprint Communications Co. enabling the carriers to deliver voice traffic to mainland China via direct connections, instead of via AT&T or other third parties.

Both carriers said the pacts pave the way for them to improve service offerings to China and roll out new services.

The two agreements mark a break with China's earlier policy of maintaining voice agreements with only one carrier per country — which in the U.S.' case had been AT&T. Under that arrangement, MCI and US Sprint were required to route traffic to China over AT&T international circuits.

Bert Roberts, MCI president and chief operating officer, said the carrier expects to soon offer MCI Call USA, which provides a toll-free number for U.S. citizens calling the U.S. from overseas to bill the call to the called party or an MCI billing service. Introduction of international toll-free 800 service is planned for early 1992.

MCI and US Sprint previously had to route traffic to China over AT&T circuits.

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A US Sprint spokesman said no specific voice services had been finalized to date, but negotiations are being conducted with the Ministry of Posts and Telecommunications of the People's Republic of China.

The direct service agreements also mean that MCI and US Sprint will pick up a portion of outbound traffic from China to the U.S. Until now, traffic from China to the U.S. had been handled exclusively by AT&T.

China decided to change its policy after reviewing the competitive environment in the U.S.

▲▲▲

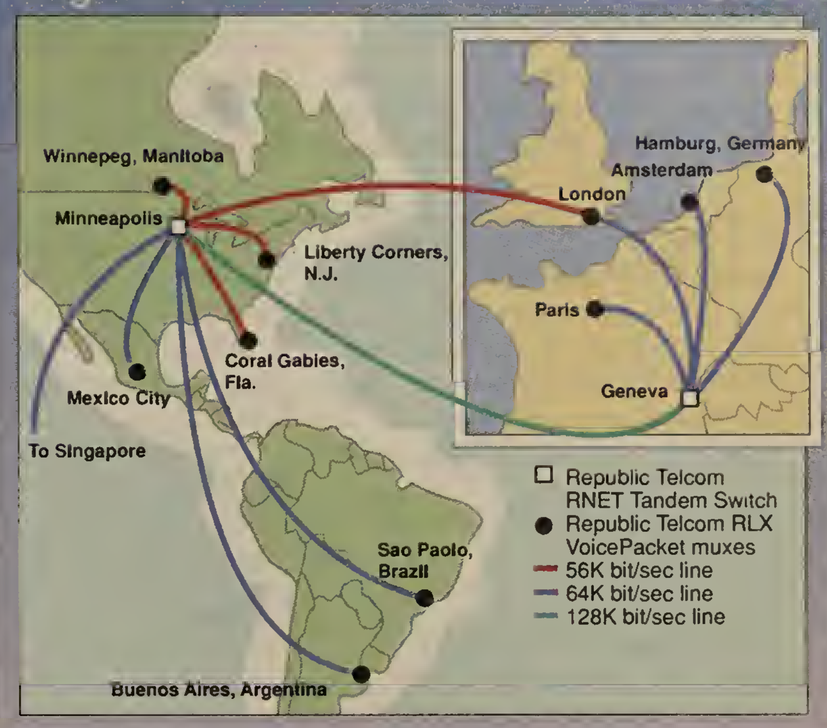
According to Vice Minister Zhu Gao-Feng of the Ministry of Posts and Telecommunications, China decided to change its earlier policy of only signing direct agreements with one carrier per country after reviewing the competitive environment in the U.S.

"We know a lot of American people selected other than AT&T as their carrier," Zhu said.

Zhu said that diversification was also a good approach since business traffic is growing rapidly between the two countries. But, Zhu added, China itself is not likely to alter its own monopoly system for a long time.

"We are at a low stage of telecommunications," Zhu acknowledged, noting that only 1% of the population has a telephone. "Our major task is to develop the infrastructure. At the present time, we will not consider free competition in our country."

Cargill's new Dual Star international network



Cargill's new private network uses a new Dual Star capability from Republic Telcom Systems Corp. to route voice traffic between offices on 4 continents.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: CARGILL, INC., MINNEAPOLIS

Int'l net users tout compression feature

Republic Telcom's Dual Star capability for Rnet switches simplifies use of voice compression.

By Barton Crockett
Senior Editor

Several users have begun implementing a new capability from Republic Telcom Systems Corp. that makes it easier to route compressed voice traffic over global private nets supported by two of the vendor's Rnet Tandem Switch hubs.

The new Dual Star capability makes multisite global networks based on Republic Telcom voice compression equipment easier to use. Many companies use voice compression to pass traffic more efficiently over expensive international circuits.

The Dual Star capability, introduced in March, consists of a card and software for Republic Telcom's Rnet Tandem Switches that enables two Rnets to send compressed voice traffic directly between each other.

Previously, users had to route calls through a web of intermediate multiplexers and private branch exchanges in order to send traffic between two Rnets.

That setup forced callers to walk through two dial tones and dial two calling codes in order to complete a call. It also degraded call quality by compressing and decompressing voice traffic twice.

"We were actually committed to use [the Dual Star capability] from the beginning [of our Rnet global private network] in

(continued on page 18)

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Int'l net users tout compression feature

continued from page 17

1989," said David Marshall, worldwide voice network project manager with SGS-Thomson Microelectronics, Inc. in Carrollton, Texas.

Marshall said SGS-Thomson first installed a beta version of the Dual Star software and hardware on its two Rnet hubs in November, before commercial shipments of the feature started in March. Republic Telcom said SGS-Thomson was the first user to cut over to the Dual Star capability.

According to Ronald Eward, president of international network consulting firm MarTech Strategies, Inc. in Indialantic, Fla., Republic Telcom's gear is the most widely used voice compression equipment on global private networks.

According to Robert Hanson, Republic Telcom's vice-president for product development, approximately two-thirds of the vendor's installed base of 4,000 voice compression systems are used on international private lines.

A Republic Telcom spokesman said only a few users are now upgrading their global nets to support Rnet's new Dual Star capability, although more upgrades are expected over time.

Marshall said Rnet's Dual Star feature has greatly improved the performance of his firm's global private network.

SGS-Thomson's network is based on Republic Telcom RLX-8 and RLX-16 Voice-Packet multiplexers in company offices in Carrollton, England, France, Germany, Italy, Malaysia, Malta, Morocco and Singapore. These RLXs take voice traffic from local PBXs, compress it to rates between 5K and 8K bit/sec, and send it over 64K and 128K bit/sec links to Rnet hubs in France and Italy.

The Rnet hubs switch compressed voice traffic to the RLX at the end location, where it is decompressed and routed to a local PBX. RLXs in Italy, Malaysia and Malta route compressed voice calls through an Rnet hub in Italy, while RLXs in Carrollton, France, Germany and Morocco route compressed voice calls through an Rnet hub in France.

Both Rnet hubs are linked to each other by two 64K bit/sec lines. Offices in England and Singapore maintain separate 64K bit/sec links to both hubs.

Before implementing the Dual Star capability, Marshall said it was extremely difficult to route calls between the two Rnet hubs. But this routing might be necessary, for example, to complete a call from Germany to Malaysia over the private net.

To do this, callers would have to place an eight-digit call from their local PBX to access a remote PBX through the first Rnet, get a dial tone a second time and enter another eight-digit code to route calls to the final destination.

"Consequently, we never trained users [to route calls through two Rnets] because it was too complicated and messy," Marshall said.

But with the Dual Star feature, users can route calls through two Rnets in the same manner as through one Rnet. As a result, about 45% of the 3,000 hours of traffic routed over SGS-Thomson's private net in May flowed between two Rnets, Marshall said.

Reuben Lantto, director of international telecommunications at Cargill, Inc. in Minneapolis, said his firm installed its second Rnet hub with the Dual Star feature last spring. The Dual Star capability makes it easier to route compressed voice traffic from the company's Asian and North and South American offices, which are served by an Rnet hub in Minneapolis, to Cargill offices in Europe, which are served via an Rnet hub in Geneva (see graphic, page 17).

Lantto and Marshall said the upgrade to the Dual Star Rnet architecture was relatively painless. Both users said they experienced many more bugs when they first installed their Rnets in 1989 and 1990. ◼

World News

continued from page 17

from its Moscow office. Of 786 attempts — mostly to the magazine's London headquarters — 754 were not completed. Of the 32 completed calls, two were wrong numbers, and six were cut off halfway through. Only one in 33 call attempts was an unqualified success.

The magazine said this hurts the Soviet Union's economy because it makes it hard to do business there. Even when calls were successful, they were very expensive, costing 6 rubles a minute to talk to London, which, at the official government exchange rate, is $3.30 a minute.

Additionally, telephones cost $2,865 to install, plus a $485 annual rent fee, *The Economist* reported. Users of facsimile machines must pay the government an extra $130 a year.

Twelve of the world's leading telecommunications companies have expressed interest in buying Pakistan's state-owned carrier, **Pakistan Telecommunications Corp. (PTC).** They include AT&T, British Telecommunications PLC, Cable and Wireless PLC, NEC Corp., Northern Telecom, Ltd. and Siemens AG, according to a government official. PTC is the largest state corporation to be put up for sale out of 150 that have been scheduled for privatization by Pakistan since the Conservative government of Prime Minister Nawaz Sharif took power in November. ◼

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12. Wide-area networks currently in use at location.
13. Wide-area networks planned for purchase over the next 12 months (tied for first).
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PRODUCTS & SERVICES

THE LATEST OFFERINGS FROM VENDORS AND CARRIERS

First Look

Zenith adds 16M bit/sec, SRT support to bridge

Zenith Electronics Corp. recently announced several enhancements to its Galaxy Exchange routing bridge, including support for 16M bit/sec IBM Token-Ring LANs.

The bridge/router also now supports the IEEE 802.5 Source Routing Transparent standard, which allows users to support connections between Ethernet and token-ring local-area nets. The product also now supports IBM's LAN Network Manager, which enables users of that product to monitor and control the Galaxy Exchange from a LAN Network Manager console.

Zenith Electronics Corp., 1000 Milwaukee Ave., Glenview, Ill. 60025; (708) 391-8181.

Digital Link serves up SMDS converter for LANs

Digital Link Corp. recently unveiled its **DL200 SMDS Converter,** which enables local-area networks to hook up with Switched Multimegabit Data Services (SMDS).

The DL200 converts incoming data to SMDS-compatible packets. The device provides V.35 and RS-449 connections to LAN-based equipment. The DL200 costs $6,195 and is available now.

Digital Link Corp., 252 Humboldt St., Sunnyvale, Calif. 94089; (408) 745-6200.

3Com packages drivers for LAN operating systems

3Com Corp. recently announced its **Installer's Kit,** a collection of diskettes containing drivers for the company's Ethernet adapter cards that enables them to support such network operating systems as Novell, Inc.'s NetWare 286, 3Com's 3+ and 3+ Open, Microsoft Corp.'s LAN Manager, IBM's OS/2 LAN Server and all network operating systems that support the Network Driver Interface Specification. Installer's Kit is available now and costs $89.

3Com Corp., 5400 Bayfront Plaza, Santa Clara, Calif. 95052; (408) 764-5000.

Gateway lets PCs emulate RJE devices

IRVINE, Calif. — Gateway Communications, Inc. recently unveiled a new gateway that enables users on Novell, Inc. NetWare and Network Basic I/O System-compatible LANs to access IBM hosts by emulating 3770 remote job entry (RJE) terminals.

The company's G/SNA 3770 Gateway enables users to customize existing local-area network-based personal computer applications to support 3770 sessions as a means of sharing data with IBM mainframes.

The gateway is software bundled onto Gateway Communications' Wide-area Network Interface Module, a communications controller board that supports 56K and 64K bit/sec microcomputer-to-mainframe links. It resides in a network server, but because all gateway tasks are processed on the board's Intel Corp. 80186-based processor, the server does not have to be dedicated to 3770 sessions.

G/SNA 3770 Gateway supports as many as eight concurrent 3770 sessions, with three IBM 3274 logical unit sessions supported to allow for emulation of 3278 and 3270 terminals. As many as five simultaneous 3770 sessions can be supported on one LAN-attached workstation.

The G/SNA 3770 Gateway appears to IBM hosts and front-end processors as a PU 2 device, such as a cluster controller.

One feature of the gateway is that it supports programmable soft keys so that users can customize their keyboards and menu selections.

The gateway takes up 65K bytes of server memory and requires 315K bytes of memory in workstations to emulate 3770 RJE terminals.

Available now, G/SNA 3770 Gateway costs $2,495.

Gateway also rolled out a new version of its G/SNA 3270 Gateway, which gives users on Novell NetWare or NETBIOS LANs access to IBM mainframes over a single communications line.

G/SNA 3270 Gateway provides as many as 128 LAN users with simultaneous access to IBM hosts by emulating 3278 or 3279 terminals.

As many as five 3270 sessions are supported on each LAN-attached personal computer. The gateway emulates an IBM 3274 Model 51C cluster controller and supports 3270 file transfer using IBM's IND$FILE utility.

The gateway requires 65K bytes of memory on a server and 125K bytes on LAN workstations.

G/SNA 3270 Gateway is available now for $2,495.

For further information, contact Gateway Communications at 2941 Alton Ave., Irvine, Calif. 92714, or call (800) 367-6555.

Mac adapter handles links to 4M/16M token-ring nets

ALPHARETTA, Ga. — Digital Communications Associates, Inc. last week announced a version of its MacIRMAtrac network adapter that connects Apple Computer, Inc. Macintoshes to 4M or 16M bit/sec token-ring LANs.

MacIRMAtrac 4/16 is based on a unique design in which users plug either a 4M or 16M bit/sec daughtercard — or Ring Interface Module (RIM) — into the token-ring motherboard.

Until now, DCA offered a MacIRMAtrac 4, which offered support for only 4M bit/sec token-ring nets.

According to the vendor, MacIRMAtrac's interchangeable RIMs assure users of a cost-effective migration path to higher speed token rings.

The adapter supports connections to 4M bit/sec token rings via shielded or unshielded twisted-pair wire, and 16M bit/sec token-ring connections are supported via shielded twisted-pair wire.

DCA said the RIM design lets users move from a shielded twisted-pair environment to an office with unshielded twisted pair without the need to replace local-area network adapters. Instead, users employ the appropriate RIM.

MacIRMAtrac is available now for $895, which includes daughtercards and the motherboard.

MacIRMAtrac 4 users who wish to upgrade to the higher speed RIM can do so at a cost of $99.

DCA is also running a promotion in which users may trade in any Macintosh or personal computer LAN adapter in exchange for MacIRMAtrac 4 or MacIRMAtrac 4/16 for $425 and $475, respectively.

For further information, contact DCA at 1000 Alderman Drive, Alpharetta, Ga. 30202, or call (800) 348-3221.

SPARCserver option reduces net delays

PrestoServe acts as NFS transaction buffer to free PCs from waiting for server acknowledgments.

MOUNTAIN VIEW, Calif. — Sun Microsystems, Inc. recently announced SBus PrestoServe, an option it said improves server responsiveness on heavily loaded SPARCserver 2s, allowing them to support more client workstations.

The company also announced several new server packaging configurations for the SPARCserver 2 line.

SBus PrestoServe is a board for SPARCserver 2 models that contains 1M byte of nonvolatile battery-backed memory as well as server software that accelerates processing of Network File System (NFS) transactions.

Until now, Sun offered PrestoServe on its high-end VMEbus-based SPARCserver 470 and 490.

PrestoServe's memory acts as a cache to minimize delays caused by numerous client workstations attempting to write data to the server's disk. Typically, client workstations must await an acknowledgment from the server that data has been written to disk before other workstation processes can proceed.

However, according to Herb Hinstorff, product manager of desktop servers at Sun, network bottlenecks occur when too many client workstations are trying to access the server's disk.

PrestoServe acts as an intermediary between the server's processors and the disk; the processor recognizes PrestoServe as the disk and off-loads NFS transactions to the cache memory for subsequent storage to the hard disk. In return, the server's processor sends an acknowledgment to the client workstation that the transaction has been completed, even though the data may still reside in the PrestoServe buffer.

PrestoServe subsequently writes the file to disk in an intelligent fashion, optimizing disk locations to store data.

Although Sun said the PrestoServe option dramatically improves server performance and expands the number of clients a server is capable of handling, Hinstorff said it is difficult to pinpoint gains because server improvements depend on the type of applications a user is running.

But he said that on a SPARCserver 2 supporting about 35 to 40 client workstations, users could expect to support about 50% more clients on average by using PrestoServe.

As for the server's I/O throughput performance gains, those improvements depend on how many NFS operations the server is handling per second. With PrestoServe, he said, the total load in terms of NFS operations per second handled by the server could increase by 140%.

The other measurement that Sun uses to gauge performance improvements is NFS response time, or how quickly workstation calls are processed by a server for each NFS operation. PrestoServe, he said, can improve NFS response times by 85%.

Hinstorff said performance improvements depend on the number of disk writes a user's net handles versus the number of disk read requests, since PrestoServe optimizes disk write requests.

Previously, Sun offered the PrestoServe option on its high-end servers for $5,995; but the feature will cost $2,995 on the SPARCserver 2 line. The product is available now.

New server configurations

Sun also said it has repackaged its SPARCserver 2 models to provide twice as much memory and disk capacity as previously offered.

An entry-level SPARCserver 2 package, which consists of a single processor with 32M bytes and a 424M-byte internal disk drive, costs $15,195. That model does not include a monitor, which frees an internal SBus slot in the server for additional terminal or local-area network connections.

Sun's file server configuration consists of a processor with 32M bytes, a 19-in. monochrome monitor, 1.7G-byte disk, 2.3G-byte tape backup unit and a CDROM unit. It costs $24,990.

Sun also said it now offers a version of the SPARCserver 2 suited for use as a data base server, which includes the SPARCserver with 32M bytes, 19-in. monochrome monitor, 3G-byte disk, CDROM unit, 2.3G-byte tape backup and Small Computer System Interface host adapter. That package costs $35,490.

All three packages are available now.

For further information, contact Sun at 2550 Garcia Ave., Mountain View, Calif. 94043, or call (415) 969-9131.

MICROCOMPUTER MANAGEMENT

BY DOUGLAS WELCH

Needed: A simple way for users to manage micros

In these days of distributed computing, local-area networks, wide-area networks and cellular communications, one major area of expansion has been overlooked: managing all these connected, yet dissimilar, systems.

Take the example of a supposedly simple software upgrade on one platform. Currently, managers can't poll the network to see which version of the software each machine is running. Instead, they must rely on purchase records, which are usually out of date. Network managers should be able to use LAN connections to manage LAN devices.

What the industry needs today is a standard microcomputer management protocol — what you might call the Simple Microcomputer Management Protocol (SMMP), a la Simple Network Management Protocol (SNMP). Such a protocol would allow microcomputer staffers to adequately manage hardware and software under their care. With SMMP built into all operating systems and microcomputer software, all microcomputers on the network could be polled and return a standard answer, no matter what their hardware or software.

> What the industry needs is a standard microcomputer management protocol.
>
> ▲▲▲

Ideally, SMMP would allow managers to poll all or a selection of machines to determine the scope of an upcoming upgrade. This poll would return information that could be used to create reports, project schedules and checklists.

With SMMP, computers that require the new software version could be upgraded remotely and automatically. Automatic updates could be performed during off-peak hours, when impact on performance would be minimal.

But for SMMP to be used in this fashion, software vendors would need to build their code to support the queries that would be generated by the SMMP control station. Even today, finding the version number of your software, which is usually buried in a welcome screen or help listing, is no easy task.

In addition, operating systems must be made SMMP-aware. This would allow net managers to poll for version numbers and other machine-specific information such as directory structures and configuration settings.

Next, network vendors need to support SMMP control stations, requests and management. Current SNMP controllers could easily be built to accommodate the further management of microcomputers. After all, why should managers have to stare at three different screens to get the answers they need?

Finally, microcomputer managers themselves need to call for the development of tools to assist them in their ever-growing duties. Faced with dwindling staffs and increased pressure to apply technology, they need to emphasize to vendors the necessity for tools such as SMMP. Hundreds and thousands of man-hours each year are spent on microcomputer software upgrades. This is time away from the profitable work of applying the microcomputer technology to business questions.

SMMP could benefit all facets of the computer industry. Network vendors would see the growth of distributed computing, software vendors would have a standard upgrade path and procedures, microcomputer managers would gain back valuable resources for more profitable uses, and end users would be assured of the best possible service, most current software and most productive networked workstation possible. ◘

Welch is a support analyst for a major entertainment corporation in Los Angeles.

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EDITORIAL

Info services ruling typifies muddled regulatory process

On the surface, U.S. District Court Judge Harold Greene's reluctant decision allowing the regional Bell holding companies to provide information services seems to be a long-sought victory for the RBHCs.

But the issue is by no means resolved. The fear that the RBHCs will abuse their near-monopoly power to stifle competition in the information services market still looms large.

Greene's ruling fuels an ongoing legal battle that will cost combatants on both sides millions of dollars in lobbying and legal fees before it's over.

What's worse for users is that the ruling seems to raise more questions than it answers. The decision sets off a volley of complex legal and regulatory questions that won't be resolved quickly or to everyone's satisfaction.

For example:

- How will oversight issues be worked out between federal and state regulators? Since the Federal Communications Commission's Third Computer Inquiry decision was overturned, it's far from clear where the jurisdictional boundaries will be set between states and the FCC — the topic of a pending FCC proceeding.

What's more, it's not clear whether state and federal regulators have the resources to adequately monitor RBHC activities in this new arena. And sufficient regulatory safeguards just aren't in place yet.

- Will the RBHCs have to offer information services through separate subsidiaries? Since Computer III was overturned, that issue is up in the air. It's also the subject of a separate FCC proceeding.
- How will the RBHCs work out problems arising from their inability to offer services that cross local access and transport area boundaries?

How valuable will any new information services be to users if the services can't be provided with any commonality on a nationwide basis?

- Will congressional action further muddy the waters? Legislators may attempt to impose restrictions on how the RBHCs offer information services. Also, lawmakers could tie RBHC entry into manufacturing to a continued ban on information services.

For better or worse, users won't be seeing information services from the RBHCs any time soon. Like all major regulatory matters, this issue will slog on for many months to come, with state and federal regulators, carriers, special interest groups, Congress and the courts all pushing their own priorities.

There has to be a better way to set national telecommunications policy. ◘

OPINIONS

NEW TECHNOLOGIES

BY MARK LUCZAK

Can frame relay deliver on the promise it shows?

Frame relay is one of today's most talked about telecommunications technologies. In contrast to other new technologies, such as Synchronous Optical Network, it promises immediate user benefits. However, the precise benefits need clarification.

Until recently, network designers had only two wide-area networking technologies from which to choose: circuit switching and X.25 packet switching.

With circuit switching, you can maximize transmission-line performance and minimize delay, but you need high amounts of costly bandwidth. With X.25 packet switching, you can save money by squeezing many virtual circuits onto one transmission line, but you risk excessive delays during peak usage periods.

Frame relay is highly touted as a wide-area network switching technology that allows users to both reduce costs and improve performance in certain applications. However, frame relay, like circuit and X.25 packet switching, also has trade-offs.

Designers of backbone networks should consider using frame relay to reduce delays and maximize link efficiency in applications transmitting large bursts of data between multiple locations, such as those associated with client/server applications. Without these requirements, frame relay adds no more value to a network than a well-designed circuit- or X.25 packet-switching approach.

From all that has been written about frame relay, network designers might easily assume that it addresses interoperability issues. It doesn't. Frame relay provides no network-layer function. It only provides a data link-layer function that supports simple connectivity.

Therefore, frame relay provides interconnectivity between communications devices — the ability for data communications equipment (DCE) to pass data through any vendor's transmission equipment. It doesn't provide interoperability between DCE and data terminal equipment — the ability to send frames from a router directly to a host.

For example, with a frame relay interface, two routers from Vendor A can exchange frames over a backbone network supported by Vendor B's packet switch or multiplexer. The routers at each end of the link must process the frames.

> As promising as frame relay may be, it is not the golden technology.
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Interoperability, on the other hand, is the ability of Vendor A's terminal equipment to send frames across Vendor B's backbone network to Vendor C's host. Interoperability would enable one vendor's router to pass frames from terminals or microcomputers on a local-area network through another vendor's packet switch or multiplexer to a frame relay interface on a host computer.

X.25 supports this function today. Frame relay does not. Frame relay simply makes the transmission of data across the WAN more efficient; it doesn't enhance interoperability.

Another design consideration of frame relay lies in how the transit delay is minimized. Frame relay reduces delay because it doesn't require every node in the backbone network to check frames for errors and typically does not require nodes to buffer frames. Therefore, frame relay leaves it up to the computers at each end of the connection to reconcile differences using a transmission protocol.

The transmission protocol detects frames that contain errors introduced by faulty transmission lines or missing frames caused by a switch's failure to buffer frames until they can be transmitted.

As digital line quality improves, transmission errors are reduced. Therefore, eliminating error correction is a worthwhile trade-off. But network designers still need to carefully consider the issue of frames being dropped because switches fail to buffer data.

Recent studies by the Institute of Electrical and Electronics Engineers, Inc. indicate that at traffic loads above 58% of the link capacity, the frame relay network begins to behave like a traditional X.25 packet-switching network with the corresponding long delays because it becomes congested.

If congestion control problems with a frame relay network develop, there are only two possible solutions: add more bandwidth, or redesign the network around another architecture. However, both of these alternatives are expensive.

Frame relay is a most promising technology, but investing heavily in a single network switching scheme is unwise.

Network designers can minimize the risk by incorporating frame relay into a more comprehensive network architecture. That architecture could support circuit switching for heavily utilized, critical connections; X.25 packet switching for the economical connection of low-volume, noncritical sites to the network; and frame relay for LAN interconnections.

As promising as frame relay may be, it is not the golden technology that will solve everyone's problems. It's simply the latest step in the continuing evolution of wide-area networking. ◼

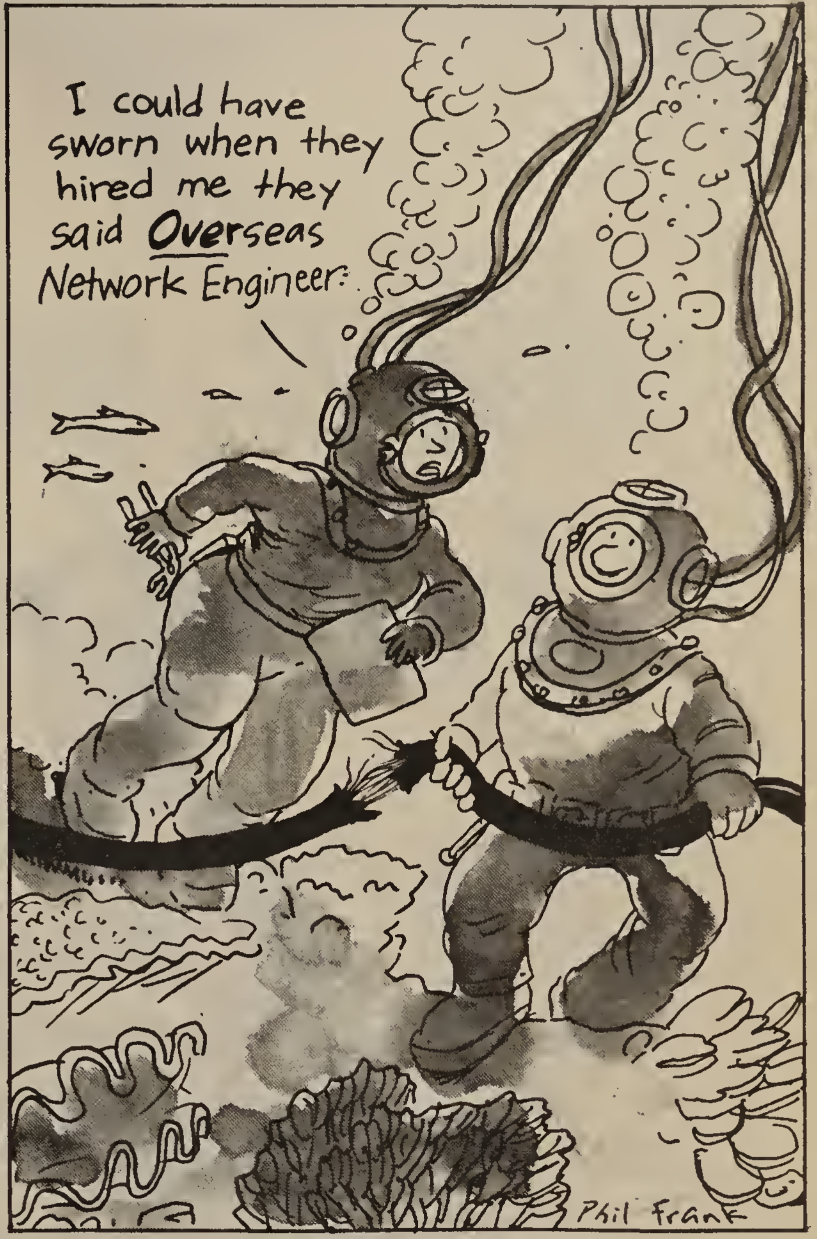
Luczak is a senior network specialist at Infotron Systems Corp., a Cherry Hill, N.J.-based manufacturer of communications equipment for public and private networks.

LIKE ALLIGATORS IN A SWAMP, unforeseen problems can really put the bite on a communications operation. Many managers find themselves wrestling with these networking reptiles every day.

If you've survived an "alligator attack," share it with our readers by calling Susan Collins, associate features editor, at (508) 820-7413 or fax your idea to us at (508) 820-3467. Alligators should be 1,200 words in length and submitted either on disk or via modem.

TELETOONS

BY FRANK AND TROISE


I could have sworn when they hired me they said Overseas Network Engineer.
Phil Frank

LETTERS

The power of voice

As a regular reader of *Network World,* I've grown to appreciate the publication's coverage: Stories are generally well researched, well balanced and accurate. However, I was disappointed in your article "Here's looking at voice processing," (*NW,* June 17).

The article refers to voice mail as improving internal productivity by reducing telephone tag.

Today's users realize that the power of voice mail lies in its ability to facilitate interactive communication among its users. Subscribers can exchange voice (and increasingly facsimile) messages with other individuals or groups of subscribers, send immediate replies to messages and forward messages with their comments to other subscribers.

The article also ignores the growing fax store-and-forward market and fax transaction processing, stressing instead fax-on-demand, which is more commonly used with audiotex applications.

In addition, the definition of fax-on-demand given in the sidebar is inaccurate. It is not a form of voice response, but a function of a voice processing system more frequently used with audiotex or information-providing applications.

Also, the definition of speech recognition as speech to text is inaccurate.

Donald Van Doren
President
Vanguard Communications Corp.
Morris Plains, N.J.

Editor's response: The article did not imply that a reduction in telephone tag is voice mail's only advantage. Rather, it pointed out users' perceptions that voice mail boosts internal produc-

(continued on page 35)

Network World *welcomes letters from its readers.*

Letters should be typed and double-spaced. Mail them to Editor, Network World, *161 Worcester Road, Framingham, Mass. 01701.*

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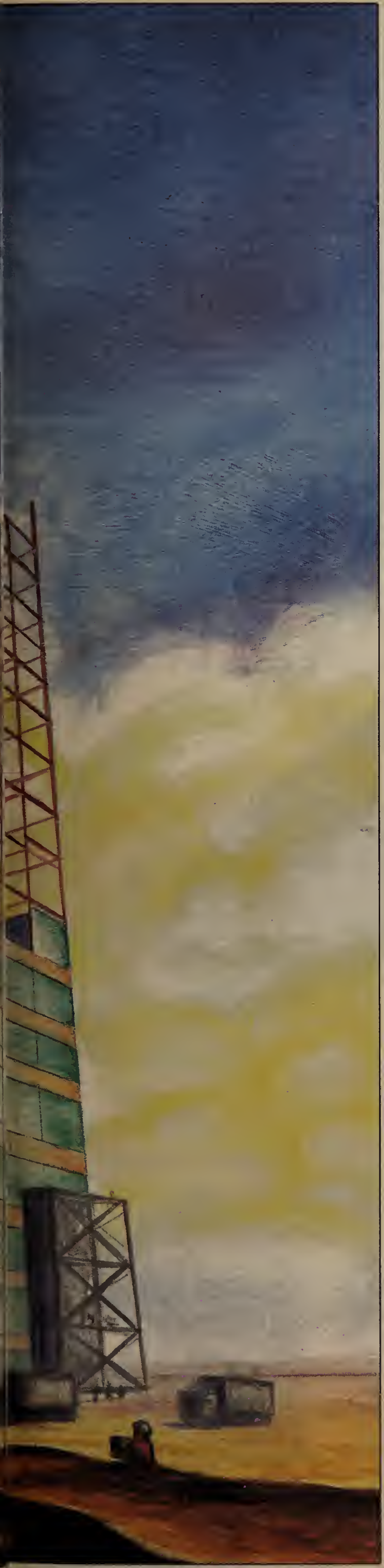

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Dealing with architected applications

CONTINUED FROM PAGE 1

ment Corp.'s Network Application Support (NAS) and Hewlett-Packard Co.'s NewWave Computing. These architectures define a set of common programming languages, communications protocols, data access methods, user interfaces and developers' tools that enable developers to build applications that easily shuttle data between disparate systems on a network.

High-level rules

Strictly speaking, application architectures are not products themselves. They only list existing and future hardware and software modules needed to build interoperable applications. The base-level systems and network components consist of a traditional infrastructure that falls within the realm of the network manager.

In these architectures, vendors supply a series of application program interfaces (API) that provide a standard mechanism for linking one software module to another.

"We look at the four basic dimensions applications need: how applications talk to users, talk to data, talk to other applications and interface with the [end user]," says Jacqueline Kahle, marketing manager for DEC's NAS.

But once applications have been developed according to a vendor's blueprints, network managers are left to oversee a tangled web of software modules running on different machines.

Network managers in organizations that have implemented an application architecture say that a failure in any one module can easily appear as a physical network problem because an application on one machine requesting connection to a service running on another is unable to establish a link.

And so, net managers must now grapple with understanding application architectures. Unfortunately, this is by no means an easy task, especially when even the vendors pitching such plans can't explain them well.

If an easy definition of "application architecture" were available, "I would have bottled it and shipped it," says Dorene Palermo, director of business and systems management for IBM's networking systems line of business.

Part of the confusion is due to a sometimes utopian vision application architectures conjure up. In a perfect application architecture world, an end user would be able to log onto a desktop computer and perform any task.

Some application processing chores might be executed on a local system while the balance is farmed out to other systems on the network. Applications that need more horsepower than the

(continued on page 24)

Patch is a free-lance writer based in Boston.

As if managing nets isn't enough, you may have to manage the applications that run on them as well.

(continued from page 23)

desktop computer can provide would automatically be shunted to a larger computer on the network.

Today, however, vendors and users are many steps away from receiving all the benefits an application architecture is supposed to provide. In fact, the benefits may never be realized.

"Part of the problem is people are waiting for the ultimate. If you sit back and wait for standards to settle down and everything to settle out, it will never happen totally," DEC's Kahle says.

While an application architecture provides some interoperability benefits today, this glorious, but difficult-to-define concept will make a network manager's job harder. For instance, as application architectures that allow for more flexible use of data are implemented, they breed distributed applications, which in turn breed more networking headaches.

> Despite the advantages they offer, application architectures are definitely making a network manager's job more difficult.
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Fortunately, there are some saving graces. Application architectures may provide opportunities to make life easier for the savvy network manager. The applications a net manager relies on to tune and diagnose a network can be built using an application architecture, thus allowing the network management system to collect management information far more easily. Application architectures also enable managers to use a consistent user interface on all management applications.

Application architectures can be categorized by two criteria: the services they provide and the systems to which they provide them. For example, an application running on one system can request another system to perform a service on its behalf by using an interprocess communications facility such as a remote procedure call.

Great idea. But . . .

Managers of networks that support an application architecture must deal with the increases in network traffic that distributed applications generate and with the more complicated networking schemes involved in connecting unlike systems, says Michael Goulde, vice-president of Open Systems Advisors, Inc., a consulting company in Boston.

"With a lot of interapplication communications going on across the network, there will be [higher] bandwidth requirements than if [users are] just doing file transfer," says Goulde. "The network manager has to be concerned with what protocols people are going to run on the network, what transport [protocols] people are going to be using and what [network] management devices are going to be supported."

However, despite the advantages they offer, application architectures are definitely making a network manager's job more difficult, according to SAA user William Maybaum, president of Fidelity Telecommunications Co. in Boston, which handles communications for parent company Fidelity Investments, a mutual fund operation. He says transmission glitches that affect communications between applications are more difficult to manage when applications are distributed and the underlying network diagnostics are more complicated.

"It's a challenge for the network infrastructure [builders]," Maybaum says. "It's a major problem [today] just to do the appropriate diagnostic work. You've reached the point where you don't want the user to know where the application is processed. That's fine. But somebody's got to know what's going on or there's going to be a problem."

It's up to the network manager and whomever in the company knows most about SAA to work together to determine whether a problem is with an application or with the network, Maybaum says. If there is no SAA guru at the company, the network manager ends up working with the IBM service folks, but it's better to have an in-house SAA expert.

SAA user Keith Sievers, vice-president and treasurer of Federal Kemper Insurance Co. in Decatur, Ill., agrees. "When you start talking about managing distributed data and multiple networks, it obviously complicates a network manager's job."

In fact, the advent of application architectures has led to a new way of thinking for network managers, says NAS user Sholom Bryski, manager of distributed systems and networks for Bankers Trust Co. in New York. When application architectures are implemented, the number of local-area networks goes up and the amount of traffic on those LANs goes up, he says. The wiring schemes that have worked in the past are also affected because more wires have to be strung to support the additional LANs and this makes cable management more complicated, he says.

In addition, the complications that implementing application architectures

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cause in today's networks means vendors must provide a sophisticated set of management tools that do a much better job of solving all the problems experienced by network managers, Bryski says.

This is happening to some degree already, he adds. Vendors are "looking for a better way of doing things. It doesn't make [the network manager's] job easier, but coming along with some of this new technology are better [management] tools," Bryski says.

If vendors do finally provide tools that help network managers keep better track of resources, maybe net managers will be as well off as they were before users began implementing application architectures, Bryski says.

Users should improve in-house network management to support application environments, says Stanley Rose, vice-president of technology strategic planning for Bankers Trust.

"We will have to build information into applications that will provide the network manager with [management data]," Rose says. For instance, Bankers Trust has already built accounting information into its applications so that the company can account for network usage by application and charge back departments.

It is also imperative for a network manager to fully understand application architectures in order to better manage the networks on which they run.

The system manager's and the network manager's jobs are "becoming much more entwined as the network becomes the computer," says David Butts, HP's market development manager for NewWave Computing. NewWave Computing is a software-based model similar to SAA and NAS, but it affects the underlying platform as well. For instance, the system console incorporates not only system management tasks but network management tasks, as well.

Merging these management tasks becomes important when the goal of DEC's NAS, IBM's SAA, and HP's NewWave Computing is to allow users to better employ available computer resources.

A note about NAS

NAS is designed to allow communication between applications running under DEC's VMS and Ultrix, The Santa Cruz Operation, Inc.'s (SCO) Unix, AT&T's Unix System V, Microsoft Corp.'s MS-DOS, IBM's OS/2 and Apple Computer, Inc.'s Macintosh operating systems.

NAS also contains APIs that allow computers running these operating systems to share files with IBM mainframes. NAS is projected to support the Open Software Foundation's OSF/1 and IBM AIX flavors of Unix, as well as a version of Unix that will run on a standard Reduced Instruction Set Computer-based workstation being developed by a vendor consortium called Advanced Computing Environment. DEC has not set any availability dates, however.

DEC breaks NAS down into four sets of services: application access services, information and resource sharing services, communications and control services, and operating system interfaces (see Figure 1, page 35).

NAS is a set of defined interfaces and a set of actual products that conform to the interfaces and can be used on different systems, Kahle says. These interfaces reside above the processor, between the operating system and the application.

For example, an NAS server running a basic NAS application allows a Macintosh and a personal computer to share files and printers, and to send electronic mail to each other.

A more complicated NAS system will enable an NAS server that is communicating with a personal computer to access data from a data base that might be located on a different system on the network and bring it to the desktop.

Say, what about SAA?

SAA enables applications running under IBM's MVS, VM, OS/2, MS-DOS and AIX operating systems to interact seamlessly at the application layer. It is a set of interfaces and protocols that provides a framework across these operating systems to allow them to interconnect and interoperate, says IBM's Palermo.

"[SAA] started out a couple years ago focused on IBM platforms," Palermo says. "We are extending it to AIX and [other] Unix platforms over time."

The basic components of the SAA model are a communications architecture that is based on IBM's Systems Network Architecture, an application structure, and a common user interface based on OS/2's Presentation Manager.

One of SAA's purposes is to put some order into the environments of both application developers and end users, Palermo says. For the developer, "SAA is a set of tools and definitions to simplify the environment for the application provider so he can write applications in a more productive fashion and provide them on as many [hardware] platforms as possible."

Riding the NewWave

HP's NewWave Computing is organized similarly to SAA and NAS. NewWave Computing supports MS-DOS, OS/2, Macintosh, HP's version of Unix called HP-UX, Sun Microsystems, Inc.'s SunOS, SCO's Unix, IBM's AIX and DEC's Ultrix. The firm is also slated to announce support for at least one more flavor of Unix later this year, according to an HP spokeswoman.

NewWave Computing has four components: the user environment, the application, the services, and base-level systems and networks.

(continued on page 35)

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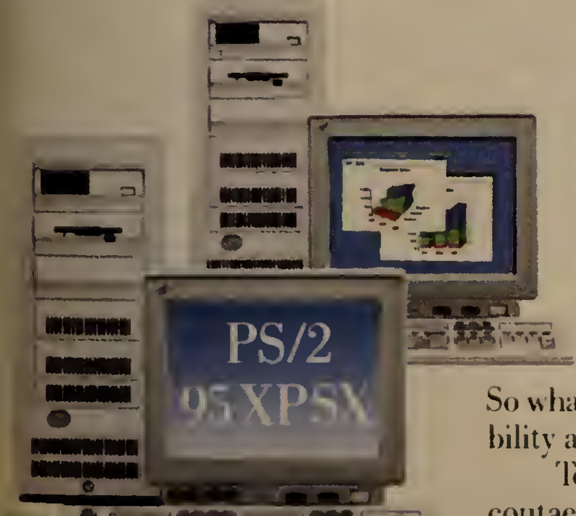

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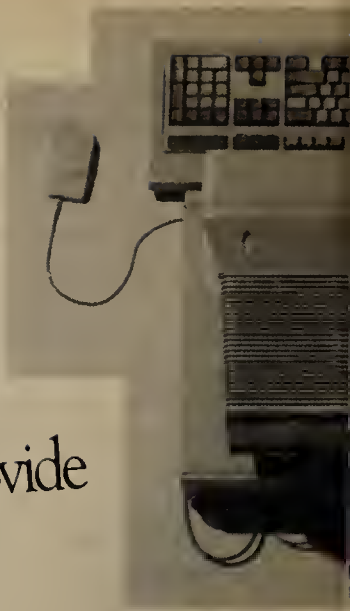

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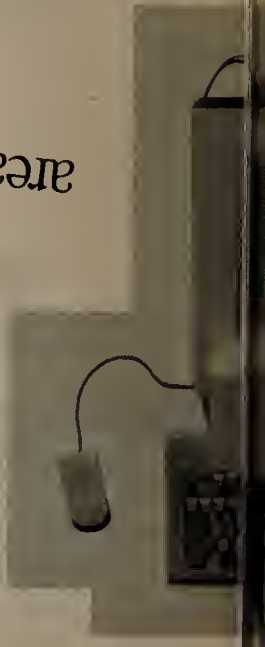

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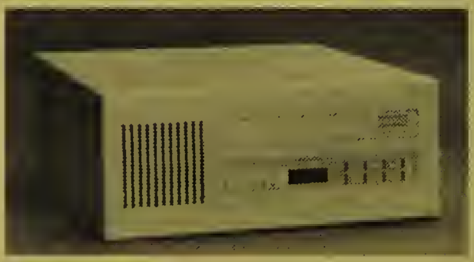

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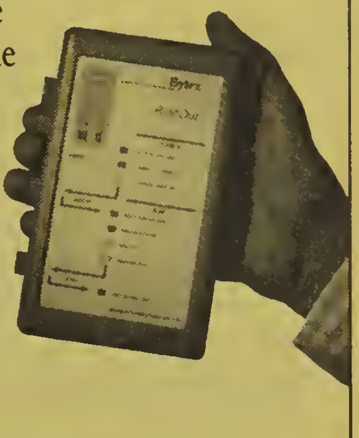

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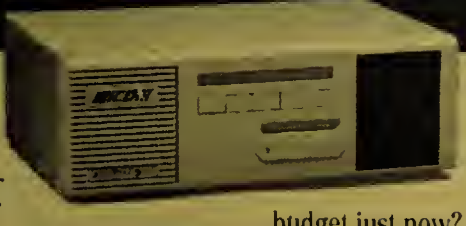

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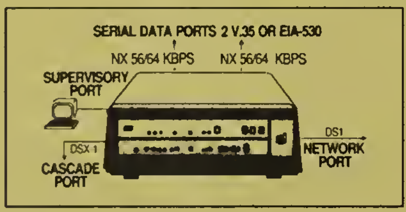

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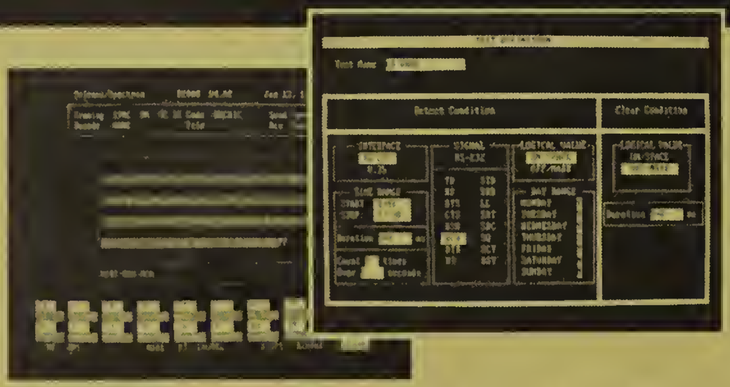

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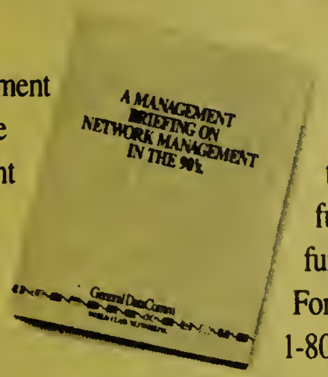

This important Management Briefing details the Wide Area Network equipment vendor's approach to managing an increasingly complex network. With this information, the network manager will be better equipped to provide the network end-user with full network connectivity, functionality, and flexibility. For your free copy, call 1-800-777-4005.

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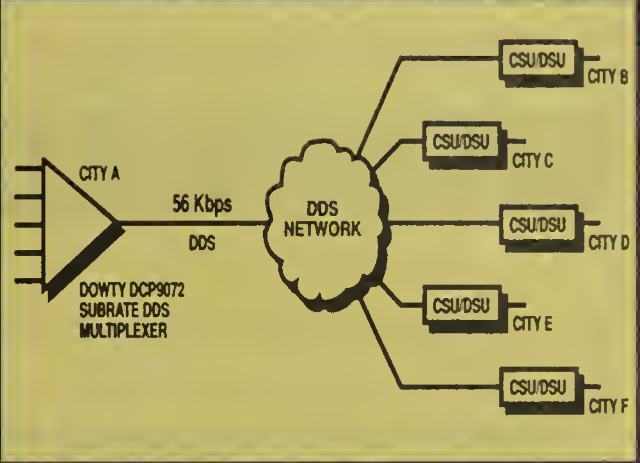

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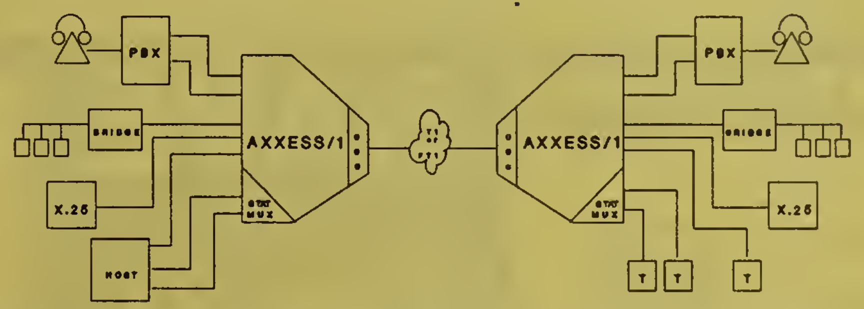

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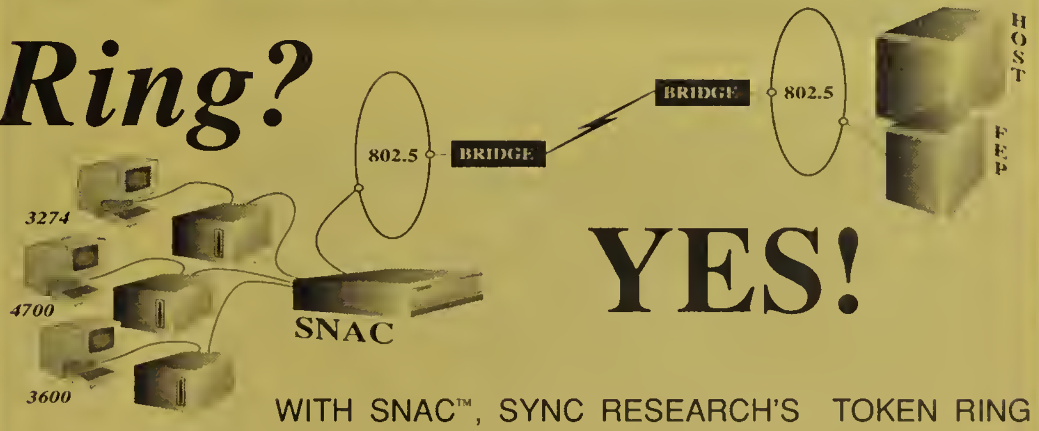

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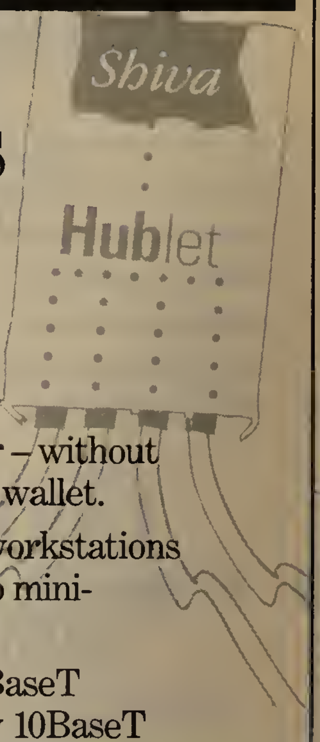

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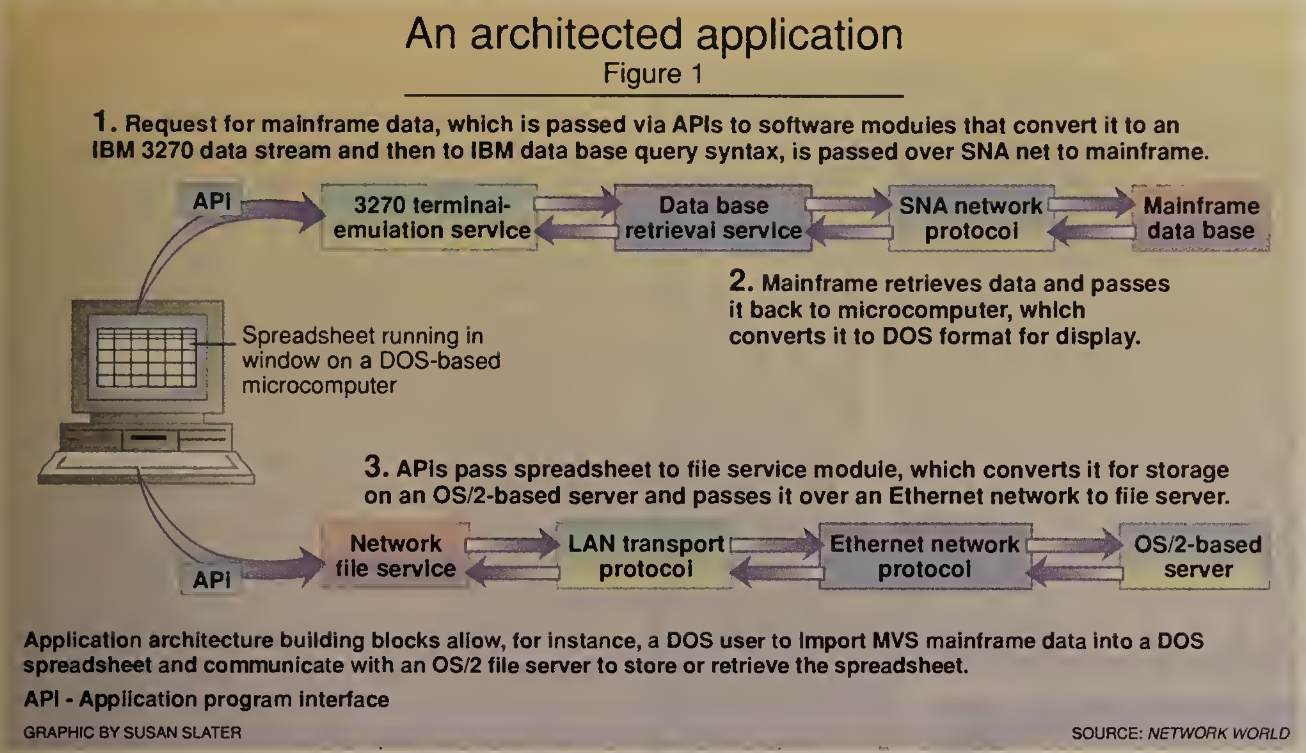
The user environment consists of graphical and nongraphical user interfaces, HP's Butts says. This enables developers to choose whether they want users to interact with an application by clicking on icons or by entering text commands.



An architected application

Figure 1

1. Request for mainframe data, which is passed via APIs to software modules that convert it to an IBM 3270 data stream and then to IBM data base query syntax, is passed over SNA net to mainframe.

2. Mainframe retrieves data and passes it back to microcomputer, which converts it to DOS format for display.

3. APIs pass spreadsheet to file service module, which converts it for storage on an OS/2-based server and passes it over an Ethernet network to file server.

API
3270 terminal-emulation service
Data base retrieval service
SNA network protocol
Mainframe data base
Spreadsheet running in window on a DOS-based microcomputer
API
Network file service
LAN transport protocol
Ethernet network protocol
OS/2-based server

Application architecture building blocks allow, for instance, a DOS user to import MVS mainframe data into a DOS spreadsheet and communicate with an OS/2 file server to store or retrieve the spreadsheet.

API - Application program interface

GRAPHIC BY SUSAN SLATER

SOURCE: *NETWORK WORLD*

The application component includes the obvious — an application — but it does not include anything else, Butts says. The level is "unlike previous generations of applications that had a transformation function — knowing where data is, getting access to it, knowing network paths — we put those into services."

The services component is divided into two subcomponents: application integration, which includes network protocols needed to connect applications to other applications and services, and the ability to use NewWave's distributed system services.

Different yet similar

All three architectures — NAS, SAA and NewWave Computing — are sets of software and hardware products from which users pick and choose.

An application architecture often has several different products that do the same thing. The user chooses the product that is best for the particular application being developed. IBM's product literature, for instance, provides users with a checklist with dozens of products under each category.

The three application architectures share some traits, but they are also very different. For example, IBM's SAA encompasses only IBM's disparate operating systems, while DEC's NAS and HP's NewWave Computing both try to tackle a wider range of operating systems. NewWave Computing is not as far along as NAS, however, analysts say.

NewWave Computing is a broad list of products, but NAS is stronger in the communications services level and provides better management facilities, according to John Dunkle, president of WorkGroup Technologies, Inc., a market research firm in Hampton, N.H.

"I've been impressed with the level of capabilities of [DEC's] network management system," says Charles Robbins, director of communications research with the Aberdeen Group. He says MCCdirector, DEC's NAS-based flagship network management product, encompasses "a series of element managers for each aspect of networking — for example, extended LAN management, bridge products and another that supports concentrator products."

Dunkle says NAS is also more open than SAA. "SAA is proprietary. It is moving more toward including some open systems technology, but the proprietary issue never leaves," he says. DEC's NAS is built on open systems, and therefore will not just interconnect, but eventually allow for interoperation between unlike machines.

As HP broadens its NewWave Computing environment to encompass more systems, it is looking more like NAS, says Open Systems Advisors' Goulde.

"It's probably most directly comparable to NAS. The major difference is in the market, not so much the architecture," he says while pointing out DEC has a bigger share of the distributed application market.

Comparing 3 application architectures

Figure 2

Architecture	Component	Function
IBM's Systems Application Architecture	Common user access	Connects user to applications via GUI
	Common programming interface	Links applications to services and other applications
	Common communications support	Links applications to networks
Digital Equipment Corp.'s Network Application Support	Applications access services	Connects user to applications via GUI
	Information and resource sharing services	Allows applications to share data and services
	Communications and control services	Links applications to other applications
	Operating system interfaces	Links applications to systems
Hewlett-Packard Co.'s NewWave Computing	User environment	Connects user to application via GUI or non-GUI
	Application	NewWave compatible application
	Application integration services	Links application to services and other resources
	Distributed system services	Allows user to build distributed systems
	Base-level systems	Links applications to systems

GUI = Graphical user interface

Despite their differences, the various application architectures are often not exclusive. Managers of large IBM environments that also have a significant number of DEC VAXes, Macintoshes and HP systems might choose to allow their IBM MVS, VS and MS-DOS environments to share applications through a network of machines running SAA-compliant applications. The managers might then use NAS to tie the VAXes, Macintoshes and HP systems together while also using it to hook the IBM systems to the latter group.

But some users, such as Federal Kemper's Sievers, say the fewer architectures on the network, the simpler it is to manage. In fact, Federal Kemper uses SAA to link applications running on IBM MVS mainframes with applications running on IBM Personal Computers and Intel Corp. 80386-based servers on a token-ring network.

Fidelity Telecommunications, on the other hand, is a large multivendor shop with elements of SAA mixed in with a parallel network architecture for non-IBM machines developed by the company's own network gurus.

"SAA is well defined for the IBM infrastructure, but we're not just IBM. So we're developing parallel capabilities so we can buy a computer from Sun, Digital, Tandem [Computers, Inc.] or Stratus [Computers, Inc.] and have a consistent set of application architectures with which to work," Fidelity Telecommunications' Maybaum says.

His company's parallel network uses Transmission Control Protocol/Internet Protocol to interconnect nodes. It incorporates some vendor-made software modules with in-house code and uses, for instance, DEC's MAILbus for E-mail. But the company is developing an in-house distributed computing architecture, according to Dan Tonelli, executive technical consultant.

"We're using pieces from Sybase [Inc.] with TCP/IP stuck beneath," Tonelli says. "It allows us to do a really distributed computer systems architecture."

Bankers Trust is a large multivendor shop that supports DEC's VMS and Ultrix, as well as IBM's MVS, MS-DOS and AIX. It uses NAS as its primary application architecture, but added elements of its own.

"NAS is really desktop-to-data center connectivity," Bankers Trust's Bryski says. "We've gone beyond that, attempting to link even the wide-area side of things into one large network."

As the network gets larger and more complicated, network management is also an exercise in predictions. For instance, a network manager has to know what users need today and anticipate what users will need in the future. The manager must then plan accordingly based on what products vendors can deliver today and what vendors say will be available later. Predicting the future may be difficult because application architectures are constantly evolving.

From an end user's point of view, application architectures, despite their complexity, can make the world a simpler place. Computing tasks can be accomplished more efficiently, and the actual computer performing the processing tasks becomes transparent to the user.

However, the jury is still out on whether application architectures will make the world an easier place for network managers.

Whose job is it anyway?

Ultimately, the task of dealing with vendors' application architectures should be subsumed into the wider task of planning the organization's own application architecture. Together, these elements will undoubtedly become a vital strategic tool for the 1990s.

Because application architectures embrace network architectures, the skills of networking must be applied to this process.

Network managers will clearly have to work with systems managers to choose an application architecture and help decide where distinct software modules conforming to the architecture will reside on the network, whether they will be duplicated for the sake of disaster recovery and how they will be managed.

However, network managers shouldn't expect too much from the newly architected systems because many new problems will likely crop up.

Because of this, experts say network managers should continue to stress the primacy of avoiding risk to the network when selecting an application architecture. "Don't expect to be able to manage enterprisewide systems today," WorkGroup Technology's Dunkle says. "But plan for the future. Keep tight control of where applications reside and what brings systems down." ◻

Letters

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tivity — whether by the means outlined by the reader or others — while interactive voice response improves customer relations. Also, facsimile store-and-forward and fax transaction processing were not addressed because those applications can be supported by devices other than a voice processor.

As for fax-on-demand, the examples in the article show how leading-edge users enable customers to receive information via voice, facsimile or both. The ability to hear up-to-date freight tracking information retrieved from a computer data base and then request a hard copy of the data via fax is clearly beyond simple audiotex.

Concerning the definitions in the sidebar, we have a matter of semantical disagreement. The definitions were written in simple terms so that readers could understand that a voice processor supports many applications including voice mail, audiotex and automated attendant.

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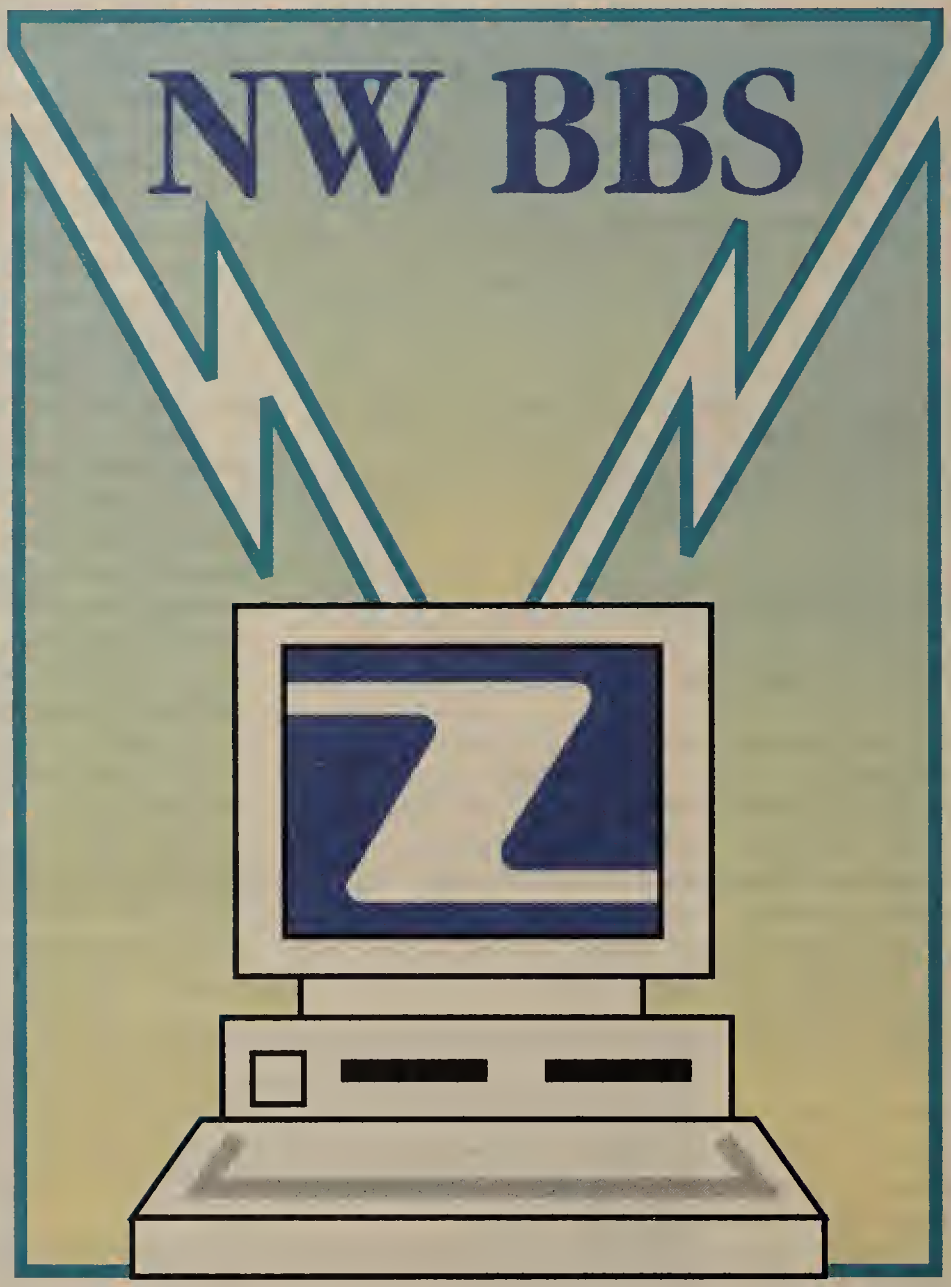

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Parallan alters superservers

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Maximum Availability and Support Subsystem (MASS), a server management software facility that provides fault tolerance and mainframe-like monitoring and performance-tuning features. Until now, MASS only supported Microsoft Corp.'s LAN Manager.

"We've always intended to support LAN Server and NetWare," Rattazzi said. But when Parallan's Server 290 first debuted, neither net operating system supported OS/2 Version 1.2, which was the operating system for the Server 290.

Today, Rattazzi said, IBM's LAN Server is the safe choice in the 200 largest Fortune 500 companies and NetWare is catching on quickly in those firms due to the IBM-Novell partnership. "It became imperative for us to support those network operating systems," he said.

Parallan's Server 290 will run a version of IBM OS/2 LAN Server 1.3, which can be fully integrated into Systems Network Architecture environments. The company will also use the NetWare 3.11 OS/2 Requestor to provide application services to Novell LANs.

Not just a big brother

"This certainly means a lot — it's tripled the appeal of the Parallan server family for local-area networks," said Michael Heylin, senior associate at Creative Strategies Research International, a research firm based in Santa Clara, Calif. "To now support the leading network operating systems broadens the appeal into the very blue IBM shops and into the large traditional LAN market dominated by Novell."

Competitors' products, according to analysts, do not have the advanced networking capabilities offered by the Parallan servers. "Other superservers are big brothers to the PC LAN environment, positioned as super file servers," rather than more powerful application servers, according to Heylin. The Parallan servers, he said, have the power of a minicomputer or a low-end mainframe.

"We're not selling a faster file server," Rattazzi said. "Our customers are using the Server 290 as an applications server that will make certain types of applications run faster. Think of it as a transaction processing server."

Both Heylin and Rattazzi stressed, however, that the Parallan Server 290 machines may not be the best solution for all NetWare or LAN Server administrators looking for a high-end server, as the prices range from about $40,000 for the low-end five-processor model to about $400,000 for the high-end eight-processor model.

"The biggest drawback [of the Parallan servers] are for departmental LAN administrators just looking for horsepower. This will exceed their budgets by an order of magnitude," Heylin said. "But for an MIS professional looking at a half-million-dollar IBM AS/400 or 9370, this can start to look awfully good."

Giant adopts client/server

continued from page 1

al computer-based front ends to host applications.

Cameron emphasized that host-based software will remain an important priority for the company — the mainframe will essentially take on the role of a back-end server.

D&B Software is one of the largest providers of mainframe software for finance, human resources, materials management, manufacturing and higher education applications.

"We've refined our focus toward building LAN applications that integrate back to the host," Cameron said. "This is a new class of applications. We're not just replicating mainframe applications."

In the next few months, D&B Software plans to set the stage for its new LAN thrust by announcing directional statements and vendor relationships in several key areas.

The company will outline the LAN environments the new applications will operate in, spell out its support for key programming interfaces and discuss plans for graphical user interfaces.

D&B Software will also select four or five SQL-based data base servers it will support and will explore a partnership through which it may provide groupware applications.

The company said last week it will use the PowerBuilder tools from Powersoft, Inc. of Burlington, Mass., to create the LAN-based applications. D&B Software said PowerBuilder will enable it to develop graphical client/server applications more quickly, as well as provide interfaces to major data base servers.

As part of the agreement with Powersoft, D&B Software will also distribute the PowerBuilder tool set with its applications and tools, allowing customers to tailor applications to meet specific requirements or to build their own applications.

The firm said it will phase in these new applications, acknowledging there are many thorny management, technical and cost issues to be ironed out before making the vision of a personal computer-to-LAN-to-host client/server architecture a reality.

But the company's customers clearly see the value in such a shift. In a survey released by D&B Software last month, 60% of its users responded that client/server was a promising concept and that they were ready to deploy applications in the next 12 months.

Analysts said the difficult shift is a must for D&B Software, which is already dealing with other technical issues. For example, according to Aaron Zornes, vice-president of the META Group in Westport, Conn., the company is still working to migrate its host applications to IBM's DB2 relational data base management system.

"They are still living with old problems in getting people to DB2, and there are new customers that don't want a mainframe solution anymore," Zornes said.

The software giant has also had its hands full dealing with the assimilation of McCormack & Dodge Corp. in 1983 and MSA Software, Inc. in 1989.

D&B Software's Cameron reaffirmed the commitment to DB2 and acknowledged that there is a core group of clients ready for a radical leap into client/server — a group that will take products in this area as fast as D&B Software can produce them.

Although D&B Software plans to have products announced by year end, pricing for the new applications will be a murky issue. The company is accustomed to selling large ticket items, and Cameron says it is working hard to figure out what to charge for this type of LAN software.

Unilever signs with Sprint Int'l

continued from page 2

International's public data network to a final destination.

Sprint International, a division of US Sprint Communications Co., will also use multiplexers in its IVAN nodes to sublease dedicated capacity to Unilever divisions from its pan-European public data network.

Additionally, Sprint International will supply Unilever with X.25 and public frame relay services. The carrier plans to begin offering public frame relay services in the fourth quarter.

Mike Johnson, Unilever's head of information technology, said Sprint International's advanced services will help Unilever compete in the emerging Common Market. Johnson said the network will be important for facilitating transborder data communications, which will increase as Europe's separate national economies become more integrated.

"Until last year, we did not see the strategic need for a worldwide communications network," Johnson said. "Now we are moving [information technology] in the way of fundamentally changing the way we do business. And the communications network is necessary to do that."

Robust network

Johnson said AT&T and Sprint International were finalists in the bidding, but one advantage the latter carrier had was its extensive European facilities. Susan Williams, Sprint International's vice-president of IVAN marketing and business operations, said the carrier has IVAN nodes in 14 European countries, with all nodes built within the past two years.

Williams said service to Unilever should begin by year end. She said the deal is one of the 10 largest IVAN service contracts Sprint International has landed in Europe. Both Unilever and Sprint International declined to disclose the value of the deal.

Unilever plans to follow its pan-European network contract with a similar deal for U.S. network services. Johnson said AT&T, MCI Communications Corp. and US Sprint are the three main bidders for the U.S. contract. He added that US Sprint will not gain an edge by winning the European net contract, which lasts until Dec. 31, 1994.

Darrell Tanno, Sprint International's director of IVAN product management, said the carrier has never before provided router-based, public LAN internetworking services to commercial users in Europe. But Sprint International operates a router service in Europe that enables government and academic users to access the National Science Foundation Network in the U.S.

Williams said Sprint International will have routers in its major European nodes by 1992. She added that the carrier may expand its router net to the U.S.

Tanno said Sprint International began subleasing dedicated capacity to users in Europe and Asia a year and a half ago. The carrier now subleases private-line capacity via multiplexers in Belgium, France, Germany, Hong Kong, the Netherlands, Switzerland, Tokyo and the U.K. IVANs are beginning to sublease dedicated services to users as restrictions on international resale fall.

Reno wagers on net overhaul

continued from page 1

four-block fiber link between City Hall and police headquarters.

"This project has just kept on expanding," said Dick Cates, system and program manager for Reno. "We expect significant savings over the leased lines we've used."

"The comparison is night and day. We're talking about a minimum [link speed] of eight times T-1, instead of 19.2K [bit/sec] point-to-point lines, without the associated costs," said Ron Wolff, MIS director for Washoe County.

The cabling project is being handled by Futronics, Inc. of nearby Sparks, Nev.

While the first fiber pull was just completed, the city is somewhat at odds with Nevada Bell over a portion of the project.

The city is hoping to lease access to four carrier-owned telephone poles for two years in order to support one leg of the fiber net while underground trenches are being dug to support the cabling.

But Nevada Bell is pitching a fiber service for that two-block area.

"We need access on a temporary basis while we dig trenches. All the rest of the fiber is underground, which we feel is ultimately safer," Cates said. All other fiber is being pulled through conduits carrying connecting wires for the city's streetlights.

Nevada Bell officials declined to discuss the issue. A spokesman for the carrier would only say, "We are evaluating the request and will be going forward with a proposal in the near future."

Cates maintains the city and Nevada Bell have been business partners from day one and that the city has no plans at this stage to use the fiber for voice or video, which may be a concern for Nevada Bell.

In total, more than 1,000 personal computers will be linked by Ethernet LANs, with most running Novell, Inc's NetWare. Unisys Corp. and IBM hosts will be linked to the fiber net through gateways on the LANs.

If all goes well, the cabling is scheduled to be completed sometime in September, with network service beginning in October. Because the conduit was also used to house the old signal wire used for emergency switches on poles around the city, planners are cautious about unexpected problems that could crop up.

Firm adorns MCI with deal

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sites in Los Angeles, Phoenix and Oxford, N.C., as well as its headquarters here and its data center in Edison, N.J. These sites are backed up with switched 56K bit/sec lines.

Other subsidiaries of Revlon and its parent company are linked to the backbone via the Vnet with either switched or dedicated access. These sites include about 110 Prestige Fragrance retail outlets that use the network for POS transactions.

Revlon is looking to extend its net abroad and is working with MCI and British Telecommunications PLC to do so via British Telecom's international Feature-Net virtual net service, LoRusso said.

Firm bullish on STM/18 switch

continued from page 2

tiplexers because it can route around failed nodes or links. The STM/18 also provides better bandwidth utilization by drawing on spare network bandwidth and assigning it to different applications on an as-needed basis.

Bear, Stearns needs that kind of flexibility. "We move hundreds of people every night, and networks change on the fly," Marshall said.

The financial services firm has an international net anchored by a complex of offices and data centers in the New York metropolitan area. The company uses numerous M13 multiplexers, which are basically T-3 channel banks, to form a T-3 backbone that supports 37 distinct networks in that area.

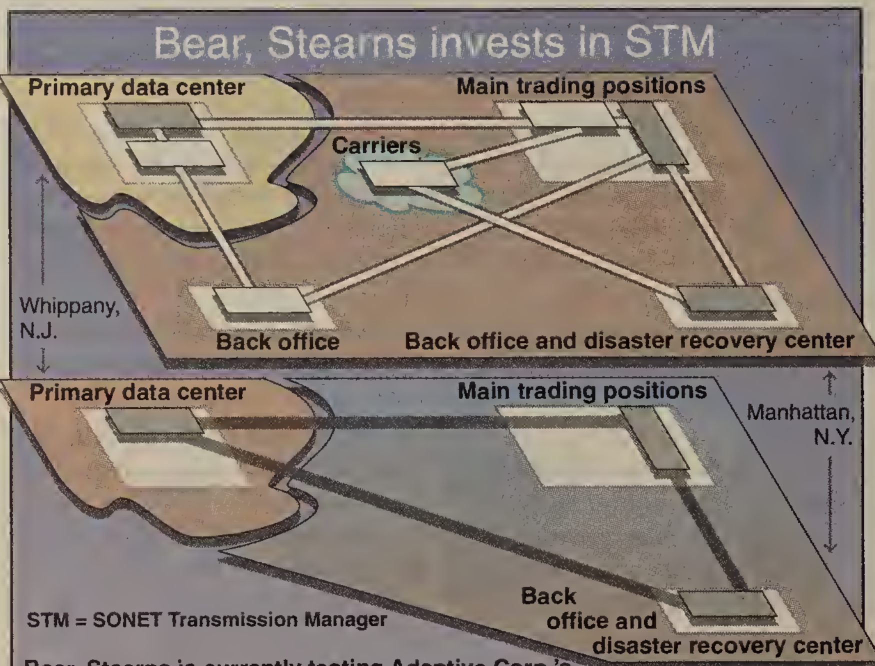
Redundancy is provided by using backup M13s and T-3s, which results in a large amount of unused bandwidth, Marshall said.

The STM/18's ability to route around failed nodes or links obviates the need for spare circuits. That, coupled with the more effective bandwidth management features of the STM/18, will enable Bear, Stearns to slash its overall line costs.

The company will reduce internal T-1 usage charges in the New York area from the current $365 per month to $165 per month by April 1992, Marshall estimated. The company projects each STM/18 will pay for itself in less than 15 months.

For its beta test, scheduled to run through this month, Bear, Stearns is using three STM/18s: one at its Park Avenue building, which houses its main trading floor; another at its primary data center in Whippany, N.J.; and the third at a backup data center in lower Manhattan.

The three sites are configured in a ring and each of the three T-3s employed are provided by different sources. One is supplied over a private microwave net, while Metropolitan Fiber Systems, Inc. and Teleport Communications Group furnish the other two (see graphic, this page).


Bear, Stearns invests in STM
Primary data center
Main trading positions
Carriers
Whippany, N.J.
Back office
Back office and disaster recovery center
Primary data center
Main trading positions
Manhattan, N.Y.
Back office and disaster recovery center
STM = SONET Transmission Manager

Bear, Stearns is currently testing Adaptive Corp.'s STM T-3 switch in a 3-node configuration, but will soon install 4 more STMs and build a fully meshed T-3 backbone in the New York metropolitan area.

GRAPHIC BY SUSAN J. CHAMPENY SOURCE: BEAR, STEARNS & COMPANY, INC., NEW YORK

Seven low-priority applications are running in production mode over the STM/18s for the beta test, including some voice and local-area networking internetwork links, Marshall said.

"They've been working without a burp," he said.

The company already has plans for four more STM/18s. One each will go in the Whippany data center and Park Avenue site — to protect against environmental disasters — while the other two will be housed at a separate lower Manhattan office and an undisclosed carrier's point of presence. With the addition of those nodes later this year, Bear, Stearns will evolve its T-3 setup into a full mesh network.

By September, Bear, Stearns expects the STM/18 to support High-Speed Serial · Interface (HSSI) links to the routers that connect its LANs to the metropolitan net. HSSI is an emerging specification for an interface that operates at any speed between 1.5M and upwards of 50M bit/sec. It is key to the STM/18's ability to manage bandwidth more effectively than an M13 multiplexer, Marshall said.

M13s can only handle T-1s, which means the most bandwidth that can be dedicated to any one application is 1.544M bit/sec.

"If you have no flexibility, normally that means you're not operating cost-effectively," Marshall said.

HSSI, as implemented by the STM/18, will enable the switch to locate spare bandwidth and allocate it to an application on demand. If, for example, a LAN bridge that normally uses 1.5M bit/sec of bandwidth needs 3M bit/sec for a large file-transfer burst and that amount of spare bandwidth exists elsewhere in the network — even on separate T-3s — the STM/18 will find it and make it available to the LAN bridge for as long as it needs it.

"We've done extensive testing, and we're very confident in the managed bandwidth scenario," Marshall said.

That will enable Bear, Stearns to increase its bandwidth utilization by dedicating to an application only what it needs on average and relying on a spare bandwidth pool to be shared by all applications for peak periods.

The STM/18 can support any device that can present a T-1 interface, including video coder/decoders, T-1 multiplexers and routers. That means Bear, Stearns can continue using its NET IDNX T-1 multiplexers, plus equipment such as channel banks from a number of vendors. ◘

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AT&T plans to recast strategy

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next month and will be demonstrated at the 1991 Tele-Communications Association, Inc. Annual Conference in San Diego in September, according to a source within AT&T.

Although AT&T sources stressed that the Merlin Legend is designed to bring Definity-like functionality to small business users, industry observers said the new product is significant for large business users, too.

"Normally, [the introduction of a low-end PBX) wouldn't be a big deal," said Doreen Austin, a senior analyst at Technology Investment Strategies Corp., a Framingham, Mass. market research firm. "But the Merlin Legend represents a cultural change at AT&T. The company is showing that it can allow customers to migrate from a key system or low-end PBX to a high-end PBX without the customer having to dump equipment."

Edward Fontenot, technology and operations vice-president for Rockefeller Group Telecommunications Services, Inc., a shared tenant services firm in New York that uses AT&T switches, applauded the news.

"Having ISDN and other high-end-type features in a low-end system sounds great," he said. "[The Merlin Legend] would be useful to small and medium-sized corporations and offices."

The Merlin Legend, already available in several test markets, will support as many as 80 trunks and 144 stations, and range in price from about $19,000 to $50,000, sources said. The product will be more aggressively priced than the Merlin II, which sells for roughly $725 per station, the AT&T source said.

The switch will be wall-mountable, boast an adjunct voice mail system and call accounting software, and offer direct connection to AT&T's Switched 56 service. It will feature an Integrated Services Digital Network interface and come with a new set of digital ISDN telephone sets, dubbed the MLX 10, MLX 20 and MLX 28.

"Merlin is not dead," Austin said. "In fact, it's gotten pretty whiz-bang. AT&T has finally bridged the gap between its key systems and PBXs."

According to Henry Delgado, president of Rhyne Communications, Inc., a Parsippany, N.J., firm that reconditions and resells AT&T key systems and PBXs, users will welcome a more cohesive switch strategy from AT&T.

"AT&T has been notorious for the 'Wall of China' [it erected] between its small and large business systems," Delgado said.

Users cannot easily migrate from AT&T's existing Merlin key systems or System 25 PBX to Definity, he said.

But the AT&T source said users can actually retain more of their investment in moving from a System 25 to a Definity than they could by moving from a Merlin Legend to a Definity. Therefore, AT&T will continue to sell the System 25, the source said.

AT&T rival Northern Telecom, Inc. has provided a smooth migration path from its small PBXs to its high-end systems. In May, Northern Telecom announced the Meridian 1 System Option 11 PBX, a low-end digital PBX that can be upgraded to a high-end system.

"AT&T's new PBX looks [like] a parallel to Northern's Option 11," said Dick Kuehn, president of RAK Associates, a consultancy in Cleveland.

According to Austin, AT&T needed to provide a smooth migration path to stay competitive in the PBX market, where it currently has the largest share. She said her company's research shows that AT&T has been losing ground to Northern Telecom faster than AT&T can make it up in recent months.

The bridging of AT&T's low- and high-end telephone systems is indicative of some major changes at AT&T's communications products group, Austin said. AT&T recently named Robert Kavner, who orchestrated AT&T's acquisition of NCR Corp., to head up the communications products group and announced it will take a $1.5 billion write-down this year. ◘

IBM offers voice processor option

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ture, callers can, for example, leave messages after checking pricing data and entering an order. An audiotex capability enables callers to listen to recorded informational messages.

The PS/2 version's speech recognition capability enables callers with rotary phones to retrieve information by speaking to the system. The DirectTalk/6000 recognizes the numbers zero to nine and the words yes, no, stop, help and cancel.

DirectTalk/2 and DirectTalk/6000 applications can access their own data bases as well as data on System/390, Application System/400, RS/6000 and PS/2 computers.

Although IBM developed the voice processing systems, it's counting on its Business Partners — and users — to develop new or enhance existing applications for the units. Fifteen Business Partners have agreed to do so.

"IBM's success in voice processing depends on what applications third parties can deliver for these systems," said Adam Greenberg, editor of "The Voice Processing Newsletter," a report published by Probe Research, Inc., a Cedar Knolls, N.J., consultancy.

"[IBM] has an impressive array of Business Partners who, if they deliver, could make life difficult for many vendors in the voice processing market," Greenberg added.

The DirectTalk/2 system will be available later this month and will range in price from $23,450 for a four-port system to $49,200 for a 16-port system.

The DirectTalk/6000 will be available in late October and will range in price from $41,000 for a 12-port system to $149,360 for a 72-port system. Prices include either a PS/2 or RS/6000. ◘

FCC decisions shake industry

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should be structured.

Reaction to the decisions was mixed. No one — long-haul carriers, users or local carriers — was completely happy, but almost everyone could claim victory on at least one issue.

Tariff 12 customers will immediately feel the impact of the agency's decision. As of Aug. 1, the FCC is barring AT&T from including 800 services in new deals or in contract arrangements until 800 numbers are portable, which should be about 18 months.

The FCC felt the ban on 800 bundling was necessary because AT&T holds 80% of the 800 services market. Opponents feared AT&T used that market power to leverage sales of more competitive services in packaged deals.

Customers will be allowed to keep existing Tariff 12s that include 800 services. Tariff 12s awaiting FCC approval on Aug. 1 will be grandfathered. However, those customers probably will not be able to make any changes to their deals.

"Renegotiation of Tariff 12s is not going to be permitted," said Gary Phillips, an attorney in the FCC's Common Carrier Bureau who worked closely on the decision. "We don't anticipate allowing revisions as a general matter, but we're not going to rule out any revisions in any case."

Brian Moir, counsel for the International Communications Association (ICA), said the prohibition on bundling 800 services is a blow to large users but the ICA understands the decision.

"We're unhappy that AT&T can't bundle 800 services, but we can understand the commission's rationale, given the [RBHCs'] reluctance to deploy [Signaling System 7]," which supports 800 portability, he said.

MCI Communications Corp. and US Sprint Communications Co. claimed victory.

"AT&T has been beating us over the head with the 800 club, and the FCC has finally taken that club away," said John Hoffman, vice-president for external affairs at US Sprint.

AT&T also lost its battle over the legality of Tariff 15, which enabled the carrier to offer off-tariff discounts to specific customers in response to similar offers from rivals. Regulated carriers are generally barred from discriminating among customers on rates or terms, but AT&T claimed it needed Tariff 15 to compete and said the discounts could be justified under a legal doctrine known as competitive necessity.

However, the FCC ruled that Tariff 15 retards competition. Under Tariff 15, AT&T could only match rival offers, not beat them. So, the FCC concluded, "this creates an incentive for all carriers to maintain their existing rates rather than engage in an unrestricted competitive bidding process that benefits customers."

The FCC rejected AT&T's first deal for Resorts Condominium International, Inc. as unlawful. AT&T has six other Tariff 15 deals that are in effect — six that have been suspended and placed under investigation and three that are awaiting FCC action.

Although the agency will have to take up each of the deals individually, Richard Firestone, FCC common carrier bureau chief, said the decision last week sets a strong precedent, making it virtually certain that all of the deals will be judged unlawful.

Easing restraints on AT&T

AT&T fared much better in the FCC's treatment of its other large business services, including Software-Defined Network (SDN), Megacom and private lines.

For the first time, AT&T will be allowed to provide services for business customers through contract rather than through a tariff.

> **T**ariff 12 customers will immediately feel the impact of the agency's decision.
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These contracts may cover a package of services — much like Tariff 12 deals — or they may provide for special terms on a single service.

Doing business through contract will give AT&T much wider latitude in negotiating prices and other special arrangements. The carrier will not be required to file cost support data.

However, unlike typical contracts, the deals must be made available to any other customers willing to take the same terms and conditions. The carrier must file a synopsis of a contract with the FCC within 14 days.

Another significant change is that six major categories of service — SDN, Megacom, WATS, Pro America, voice-grade private lines and other private lines — will be removed from price cap regulation. Previously, price cap rules prevented AT&T from moving the aggregate price for those services up or down by more than 5% annually. AT&T will be free to change rates as much as it wants.

The ICA's Moir said the user group is concerned about this decision because it takes away any assurance that AT&T will not raise prices dramatically.

Also, AT&T now only needs to give the FCC only 14 days' notice for any tariff change, and it will no longer be required to supply cost and revenue data. The FCC will judge the tariffs under a more liberal standard, presuming they are lawful. That means an opponent must prove a deal is illegal.

In a third major decision last week, the FCC issued instructions to the RBHCs and GTE Telephone Operations to speed implementation of the technology needed for 800 number portability.

In an April 1989 ruling, the FCC gave the green light for development of network data bases that would enable local carriers to look up the long-distance carrier to which calls should be routed. Currently, 800 numbers are assigned to specific carriers and cannot be moved from one carrier to another.

Fearing that call setup times would quadruple unless the appropriate signaling technology — Common Channel Signaling System 7 (CCS7) — is widely deployed, the FCC delayed cutover to the new data base system. Carriers were told they may move to the new system only when CCS7 is available on all tandem switches and at the central offices from which 80% of traffic originates.

If that approach had been maintained, it would likely have delayed 800 number portability until the mid-1990s.

The FCC last week reconsidered the earlier order and pressed the local carriers to implement the technology so that, in 18 months, data base lookups can be done with only a five-second call setup on 97% of each carriers' traffic. In another two years, the carriers will not be permitted to have more than a five-second delay on all traffic and a mean delay of 2.5 seconds.

Although the FCC did not specify any punitive action to be taken against the carriers should they miss the 18-month deadline, Firestone expressed complete confidence that the carriers will be able to comply.

The FCC also issued a preliminary ruling on another important matter — the structure of access charge rates. A provision, set to expire Sept. 1, in the Modified Final Judgment mandates that access charges paid to the local carriers must be the same whether a long-distance carrier accesses the local switch directly or uses an intermediate switch.

The rule was deemed necessary at divestiture because AT&T had so many more offices than rivals that it could have used the less costly direct connections more often, leading to gross imbalances in access charges between AT&T and other carriers.

The FCC voted to continue the current rules until it can conduct an investigation on the proper pricing of access charges. It tentatively proposed that charges will be calculated according to three variables: a flat rate charge for access lines dedicated to one carrier, a usage-sensitive charge for access lines used jointly by several carriers and an interconnection charge for all carriers.

Antivirus firms to dispel hype

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network, he said.

"Right now there is a numbers game among vendors claiming to be able to handle more viruses than the next company," Tippett said. "I hope we'll be able to eliminate some of the hype."

The AVPD Consortium will rely on a data base operated by the NCSA to serve as a central repository of standard virus names and to provide a count on the number of viruses identified, Tippett said.

The NCSA data base, which is already in operation, currently lists about 900 viruses. According to Stang, elimination of the numbers game will allow vendors to compete on the basis of ease of use and the ability of the software to repair itself upon becoming infected with a virus.

"For the last few years, users have had trouble shopping for antivirus products," Stang said. "All they have had to go on was the back of the box and the manufacturer's claims. There hasn't been anything like *Consumer Reports* for the virus industry."

The AVPD Consortium's first meeting, which will be primarily organizational, is scheduled for Nov. 25-26 in Washington, D.C.

Features writer Salvatore Salamone contributed to this story.

Bill curbs ANI, caller ID use

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that will pass and also protect consumers."

Markey worked out a compromise with Rep. Matthew Rinaldo (R-N.J.), the senior Republican on the subcommittee, that would allow corporations to use caller information if the customer does not object. Under the modified version of the bill, firms must orally notify callers that their personal information may be collected and sold to outside organizations. Unless the caller objects to the sale of this personal information, the firm is free to use the data for any purpose.

The bill originally introduced by Markey also mandated that callers would have the right to block their numbers from being transmitted over 800, 900 or local calls free of charge. The modified bill retained this requirement but added a new "block the block" provision that would allow carriers to sell a device that rejects any call for which transmission of the originating telephone number is blocked.

Also added to the bill was a provision written by Rep. Don Ritter (R-Pa.) that would prevent state regulators from barring caller ID or ANI services.

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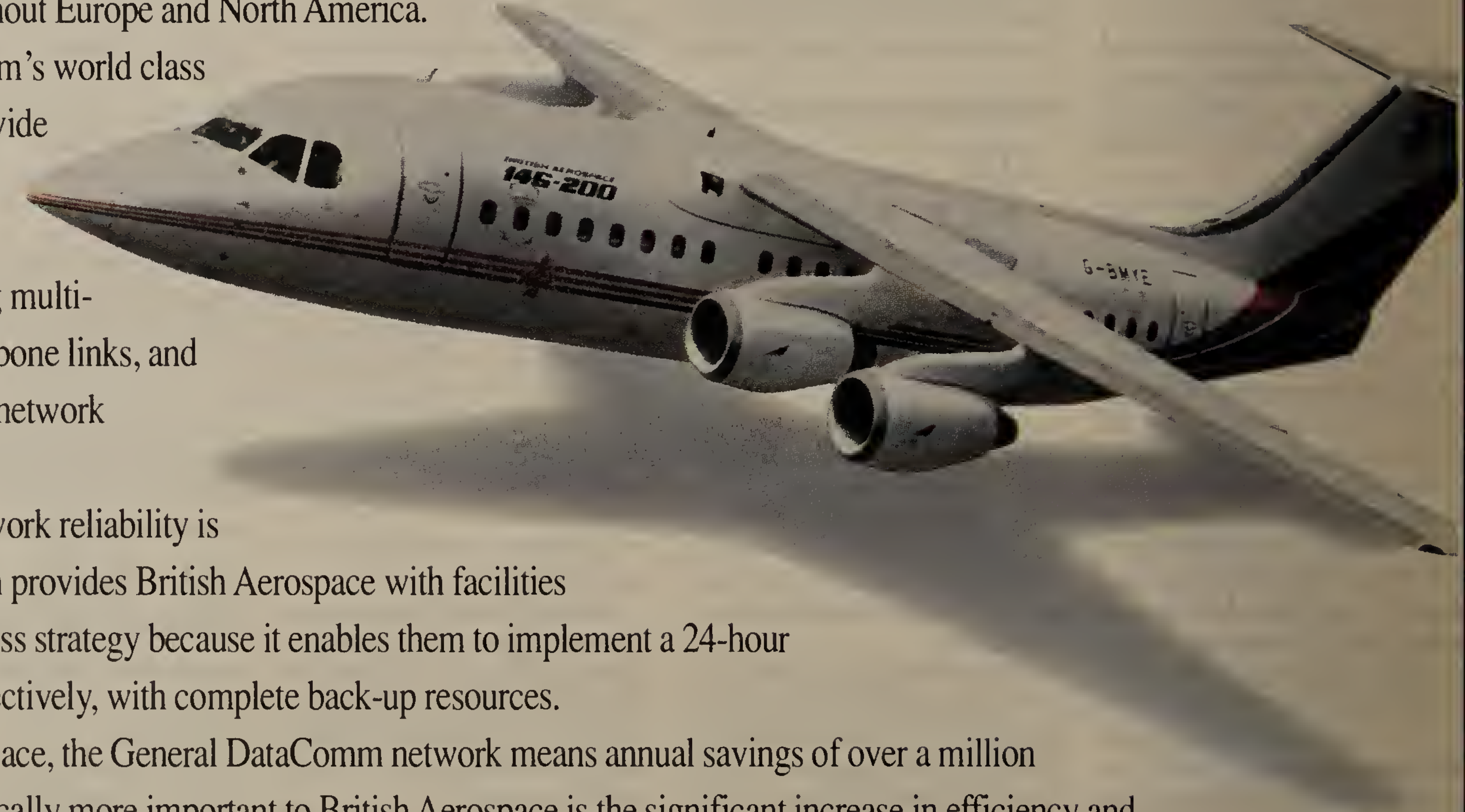

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